

# Appendix

## Environmental, Social & Governance (ESG) Management Framework (ESG MF)



### Hero Future Energies

Private & Confidential

March 2025

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## 1 APPENDIX A: Applicable Legal and Regulatory Framework

Hero Future Energies (HFE) business shall, adhere to national and state level legislations related to environment, social, health and safety and labour welfare and international E&S Safeguards. As a guidance note, “Applicable Regulatory Framework” has been developed describing key regulatory requirements applicable to HFE business activities. The framework covers both –

- National regulatory framework applicable to HFE and its portfolio operations and;
- International E&S standards applicable.

The applicable national regulatory framework for HFE and its related operations has been presented in the Table below:

**Table: Applicable Environmental and Social Legislative framework**

S.N	Specific Regulation/Policy	Key Requirement(s)	Enforcement Agency	Remarks
<b>Environment</b>				
1.	National Green Tribunal Act, 2010	<ul style="list-style-type: none"> <li>Instituted for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal rights relating to environment and giving relief and compensation for damages to persons and property.</li> <li>The tribunal will have jurisdiction over all civil cases relating to implementation of the following regulations: <ul style="list-style-type: none"> <li>The Water Act, 1974;</li> <li>The Water Cess Act, 1977;</li> <li>The Forest Conservation Act, 1980;</li> <li>The Air Act, 1981;</li> <li>The Environment Protection Act, 1986;</li> <li>The Public Liability Insurance Act, 1991; and</li> <li>The Biological Diversity Act, 2002</li> </ul> </li> </ul>	National Green Tribunal	-
2.	EIA Notification 2006 - Environmental Clearance and Public Consultation	<p>The EIA notification divides all projects into two categories i.e. category A and B, based on spatial extent of potential impacts on human health and natural and manmade resources. All 'category A' projects or activities require environmental clearance from the MoEFCC, Government of India on recommendations of the Expert Appraisal Committee (EAC) while projects under 'category B1' (Category B is subdivided into B1 and B2) require prior clearance from State /Union territory Environment Impact Assessment Authority (SEIAA), based on recommendations of a State level Expert Advisory Committee (SEAC).</p> <p>The Environmental Clearance under the EIA notification is granted based on prior EIA study conducted as per Terms of Reference approved by Expert Appraisal Committee of MoEFCC. Based on EIA study and conduct of Public Consultation, the EAC of MoEFCC appraises projects requiring Environmental Clearance.</p>	MoEFCC/SEIAA	The projects does not require environment clearance from MoEFCC/SEIAA. However, EIA notification will be applicable for GH derivatives such as Methanol.
3.	Forests (Conservation) Act, 1980 and Rules 1981 as amended 2004	<p>The Forest Conservation Act (FCA) was adopted in 1980 to protect and conserve forests. The Act restricts the powers of the State in respect of de-reservation of forests and the use of forestlands for non-forest purposes. An advisory committee has been created to oversee the implementation of the statute. The FCA is relevant for the power sector for the siting guidelines for solar power plants, and for passage of transmission through forest areas, since it would involve use of forestland for "non-forest" purposes.</p> <p>According to Section 2 of the Act "notwithstanding anything contained in any other law for the time being in force in a State, no State Government, or other authority shall, except with the prior approval of the Central Government, make any order directing:</p> <ul style="list-style-type: none"> <li>De-reservation of a reserved forest</li> <li>Use any forest land for any non -forest purpose</li> <li>Assign any forest land to any private person or entity not controlled by the Government</li> <li>Clear any forest land of naturally grown trees for the purpose of using it for reforestation</li> </ul>	MoEFCC/State Forest Department	-
4.	Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016	<p>Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 are promulgated under Environment (Protection) Act 1986. With the recent amendment, these rules have become quite comprehensive. The rules define responsibility of hazardous wastes generators, require safe handling practices and maintenance of manifest system during transport of hazardous waste and also describe technological aspects to be followed up by re-refiners and recyclers of hazardous wastes. The rules also cover liabilities of occupier, transporter and operator of a facility for any damages caused due to improper handling and disposal of hazardous wastes by reinstating or restoring environmental damages caused.</p>	SPCB	According to Hazardous and Other Wastes (Management and Transboundary Movement) Amendment Rules, 2019, an occupier shall not be required to obtain Hazardous Waste Authorization from SPCB in case Consent to Establish (CTE) or Consent to Operate (CTO) is not required under The Air (Prevention and Control of Pollution) Act, 1981 and The Water (Prevention and Control of Pollution) Act, 1974. Provided that the hazardous and other wastes generated by the occupier shall be given to the actual user, waste collector or operator of the disposal facility in accordance with CPCB guidelines. Since the solar, and wind projects does not require CTE and CTO, hence are exempted from obtaining hazardous waste authorization.
5.	Solid Waste Management Rules, 2016	<ul style="list-style-type: none"> <li>According to the rules, waste generator shall segregate and store the waste generated in three separate streams namely bio-degradable, non-biodegradable and domestic hazardous wastes in suitable bins and handover segregated wastes to authorised waste pickers or waste collectors as per the direction or notification by the local authorities from time to time.</li> <li>No waste generator shall throw, burn or bury the solid waste generated, on streets, open public spaces outside his premises or in the drain or water bodies.</li> </ul>	SPCB/Local Municipal Body	All bio-degradable, non-biodegradable and domestic wastes generated will be managed by the Project in accordance with the relevant provision of this Rule

S.N	Specific Regulation/Policy	Key Requirement(s)	Enforcement Agency	Remarks
		<ul style="list-style-type: none"> <li>All waste generators shall pay such user fee for solid waste management, as specified in the byelaws of the local bodies. The waste generated by waste generators are sent to the identified regional sanitary landfill or solid waste processing and disposal facilities. Authorization needs to be obtained from SPCB/ PCC for processing/recycling/ treatment and disposal of solid wastes, if volume of waste exceeds five tonnes per day</li> </ul>		
6.	The Plastic Waste Management Rules, 2016	<ul style="list-style-type: none"> <li>Waste Generator should take steps to minimize generation of plastics and segregate plastic waste at sources in accordance with the Solid Waste Management Rules, 2016</li> <li>Handover segregated waste to urban local body or gram panchayat, or agencies appointed by them or registered waste pickers', registered recyclers or waste collection agencies.</li> <li>All waste generators shall pay such users fee or charge as may be specified in the byelaws of the local bodies for plastic waste management such as waste collection or operations of the facility, therefore.</li> </ul> <p>Per rule 13 of the Plastic Waste Management Rules, 2016, every producer, recycler and manufactures have to obtain <b>Registration in Form 1</b> from the State Pollution Control Board or the Pollution control committee of the Union Territory</p>	CPCB/SPCB	Obtain Extended Producer Responsibility (EPR) Registration from CPCB/SPCB
7.	Batteries (Management and Handling) Rules, 2001 and further amendments	The Rules identify specific responsibilities for consumers and bulk consumers, manufacturers, importers, assemblers, re-conditioners, dealers, recyclers, and auctioneers involved in the processing, trade and use segments of the lifecycle of a lead-acid battery. Used Lead acid batteries if generated should not be disposed of in any manner other than depositing with the dealer, manufacturer, importer, assembler, registered recycler, reconditioner, or at the designated collection centres.	SPCB	-
8.	The Air (Prevention and Control of Pollution) Act, 1981 Including Rules 1982 and 1983	The Act prohibits the construction and operation of any industrial plant without the consent of SPCBs. The Act assigns powers and functions to the CPCB and the SPCBs for prevention and control of air pollution and all other related matters. For the prevention and control of air pollution, the State Government, in consultation with the SPCB has the powers to set standards for emissions from automobiles, impose restrictions on use of certain industrial plants and prohibit emissions of air pollutants in excess of the standards laid down by the SPCB. It can also make an application to the court for restraining persons from causing air pollution. In addition, it also has the power of entry and inspection, power to obtain information and power to take samples of air emissions and conduct the appropriate follow up. The CPCB, as well as the SPCBs are eligible for contributions from the Central as well as the State Government, respectively, to perform their functions appropriately. The Act also allows for appropriate penalties and procedures for non-compliance.	SPCB	As per CPCB notification dated March 07, 2016 Wind and Solar Power projects are categorized under white category and there shall be no necessity of obtaining the consent to operate for white category industries and intimation to concerned SPCB/PCC shall suffice. However, green hydrogen manufacturing units are required to obtain Consent to Establish and Consent to Operate.
9.	Noise Pollution (Regulation and Control) Rules, 2000 and the Noise Pollution (Regulation and Control) (Amendment) Rules, 2010	As per the Noise Pollution (Regulation and Control) Rules 2000, every operating facility is required to take all possible steps to meet the ambient noise level standards prescribed in the Rules. The rules prescribe maximum permissible values of day and night time noise levels for zones A, B, C and D representing industrial, commercial, residential and silence zone respectively.	SPCB	Noise levels to be maintained within the specified limits
10.	The Water (Prevention and Control of Pollution), Act, 1974 including Rules, 1975 (as amended up to 1988)	This Act provides for the prevention and control of water pollution and maintaining or restoring good water quality for any establishment. The Act assigns functions and powers to the CPCB and SPCBs for prevention and control of water pollution and all related matters. Subject to the provisions of the Act, the functions and powers of CPCB as well as the SPCBs have been delineated individually and with respect to each other. As per CPCB notification dated March 07, 2016 Wind and Solar Power projects are categorized under white category and there shall be no necessity of obtaining the consent to operate for white category industries and intimation to concerned SPCB/PCC shall suffice.	SPCB	As per CPCB notification dated March 07, 2016 Wind and Solar Power projects are categorized under white category and there shall be no necessity of obtaining the consent to operate for white category industries and intimation to concerned SPCB/PCC shall suffice. However, green hydrogen manufacturing units are required to obtain Consent to Establish and Consent to Operate.
11.	The Water (Prevention and Control of Pollution), Cess Act, 1977 including Rules 1978 and 1991	This Act provides for levy and collection of Cess on water consumed and water pollution caused. It also covers specifications on affixing of meters, furnishing of returns, assessment of Cess, interest payable for delay in payment of Cess and penalties for non-payment of Cess within the specified time. Industries consuming water less than 10m <sup>3</sup> /day have been exempted from levy of cess provided they are not generating hazardous wastes.	SPCB	Applicable during operation phase
12.	Permission for extraction of groundwater - Central Groundwater Authority (CGWA), Ministry of Jal Shakti, Notification dated 24 September 2020	<ul style="list-style-type: none"> <li>As per Central Groundwater Authority (CGWA), Ministry of Jal Shakti, Notification dated 24 September 2020 , new industries will be allowed to abstract groundwater in areas categorized as 'Safe, Critical and Semi-Critical' by CGWB. Industries will have to obtain No Objection certificate (NOC) from CGWA before abstraction and use of groundwater.</li> <li>Industries drawing ground water in safe, semi-critical and critical assessment units shall be required to obtain authorisation and pay ground water abstraction charges as mentioned in the notification and adhere to specific guidelines (refer to Section 4.1 and Tables 5.2.A and 5.3.A of the Notification). renewal of the CGWA NOC will need to be undertaken every 3 years by the Project (refer to Section 11.0 of the Notification).</li> </ul> <p>NOC shall not be granted in <b>over-exploited</b> areas for ground water abstraction to any new industry except those falling in the category of Micro, Small and Medium Enterprises (MSME).</p>	CGWA/SGWA	Obtain CGWA/SGWA NOC prior to abstraction of groundwater

S.N	Specific Regulation/Policy	Key Requirement(s)	Enforcement Agency	Remarks
13.	Wildlife (Protection) Act, 1972	<ul style="list-style-type: none"> <li>If any protected/ endangered flora or fauna (as listed in Schedules of Wildlife Protection Act, 1972) are found in the project area, the proponent should implement conservation measures for their protection.</li> </ul>	Wildlife Warden, State Forest Department	Applicable during pre-construction stage of the project
14.	Electricity Act, 2003	<p>The sections of the Electricity Act, 2003 that are relevant for laying (and repairs) of transmission lines for the supply of energy are described as following:</p> <ul style="list-style-type: none"> <li>Section 67 details the provisions (a) to open and break up the soil and pavement of any street, railway or tramway; (b) to open and break up any sewer, drain or tunnel in or under any street, railway or tramway; (c) to alter the position of any line or works or pipes, other than a main sewer pipe; (d) to lay down and place electric lines, electrical plant and other works;(e) to repair, alter or remove the same; (f) to do all other acts necessary for transmission or supply of electricity.</li> <li>Section 159 describes that no person shall be engaged in the generation, transmission, distribution, supply or use of electricity, in any way injure any railway, highway, airports, tramway, canal or water-way or any dock, wharf or pier vested in or controlled by a local authority, or obstruct or interfere with the traffic on any railway, airway, tramway, canal or water-way.</li> <li>Section, 160(1) describes that every person generating, transmitting, distributing, supplying or using electricity (hereinafter in this section referred to as the "operator") shall take all reasonable precautions in constructing, laying down and placing his electric lines, electrical plant and other works and in working his system, so as not injuriously to affect, whether by induction or otherwise, the working of any wire or line used for the purpose of telegraphic, telephone or electric signaling communication, or the currents in such wire or line.</li> <li>Section 34 describes that every transmission licensee shall comply with such technical standards, of operation and maintenance of transmission lines, in accordance with the Grid Standards, as may be specified by the Authority. Section 53 (1) describes that the Authority may in consultation with the State Government, specify suitable measures for –(a) protecting the public (including the persons engaged in the generation, transmission or distribution or trading) from dangers arising from the generation, transmission or distribution or trading of electricity, or use of electricity supplied or installation, maintenance or use of any electric line or electrical plant; (b) eliminating or reducing the risks of personal injury to any person, or damage to property of any person or interference with use of such property ; (c) prohibiting the supply or transmission of electricity except by means of a system which conforms to the specification as may be specified; (d) giving notice in the specified form to the Appropriate Commission and the Electrical Inspector, of accidents and failures of supplies or transmissions of electricity; (e) keeping by a generating company or licensee the maps, plans and sections relating to supply or transmission of electricity; (f) inspection of maps, plans and sections by any person authorised by it or by Electrical Inspector or by any person on payment of specified fee; (g) specifying action to be taken in relation to any electric line or electrical plant, or any electrical appliance under the control of a consumer for the purpose of eliminating or reducing a risk of personal injury or damage to property or interference with its use;</li> <li>Section 165 (1) In section 40, sub-section (1) of clause (b) and section 41, subsection (5) of the Land Acquisition Act, 1894, the term "work" shall be deemed to include electricity supplied or to be supplied by means of the work to be constructed. (2) The Appropriate Government may, on recommendation of the Appropriate Commission in this behalf, if it thinks fit, on the application of any person, not being a company desirous of obtaining any land for its purposes, direct that he may acquire such land under the provisions of the Land Acquisition Act, 1894 in the same manner and on the same conditions as it might be acquired if the person were a company.</li> </ul>	Electrical Inspector	Applicable during operation phase
15.	The Petroleum Act, 1934 and the Petroleum Rules	<p>This Act and Rules provide procedures and safety measures to be taken up for handling, storage and transportation of petroleum products. The Rules define the quantity and class of petroleum for which prior permission from the concerned authorities are required. The storage requiring prior licences are as following:</p> <ul style="list-style-type: none"> <li>Petroleum class A (having flash point less than 23°C) not intended for sale of the total quantity in possession does not exceed 30 litres. Petroleum Act, 1934, Section 8).</li> <li>Petroleum class B (having flash point from 23 to 65°C) if the total quantity in possession at any one place does not exceed 2,500 litres and none of it is contained in a receptacle exceeding 1,000 litres; (Petroleum Act, 1934, Section 7).</li> <li>Petroleum class C (having flash point above 65 to 93°C) if the total quantity in possession at any one place does not exceed 45,000 litres (Petroleum Act, 1934, Section 7).</li> </ul>	Petroleum Explosives Safety Organization (PESO)	Applicable if storage exceeds the threshold quantity specified in the Act and Rules
<b>Social</b>				
16.	Land Acquisition Act 1894 (Amended in 1984) and The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	<p>The Land Acquisition Act 1894 was passed with the purpose of enabling the procurement of land for the purpose of activities which are in the interests of the country. These include procedures for the acquisition of land, declaration of acquisition intent, hearing of objections, and final possession of the land amongst others.</p> <p>In last decade, the LA Act 1894 has been debated over for its archaic characters which do not fit into the current realities. The current reality surrounding the process of land acquisition has changed tremendously, and therefore, the need was felt for the passing of a new law. A new Land Acquisition Resettlement and Rehabilitation Bill (LARR) 2011, which was renamed to The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act (the LARR Act), was passed by both the houses of Parliament and given the President's assent on 26th September 2013. The new law came into force in January 2014 and is applicable to the project.</p> <p>The new law stipulates mandatory consent of at least 70% of affected people for acquiring land for Public Private Partnership (PPP) projects and 80% for acquiring land for private companies. It also requires that payment of compensation for the owners of the acquired land will be four times the market value in rural areas and twice in urban areas. It also stipulates that the land cannot be vacated until the entire compensation is awarded to the affected parties.</p> <p>The law has the provision that the companies can lease the land instead of purchasing it. Besides, the private companies will have to provide for rehabilitation and resettlement if land acquired through private negotiations is more than 50 acres and 100 acres in urban and rural areas, respectively.</p>	Local Administration - District Collector  Revenue Officer	Applicable if land acquisition is involved.
17.	The Scheduled Tribes and Other Traditional Forest Dwellers	The act basically vests the forest rights and occupation in forest land in forest dwellers (ST and other traditional forest dwellers) who have been residing in forests for generations but whose rights could not be recorded. The act provides a framework for recognizing the forest rights and the nature of	Ministry of Tribal Affairs	Applicable only if land procured/to be procured is falling under designated

S.N	Specific Regulation/Policy	Key Requirement(s)	Enforcement Agency	Remarks
	(Recognition of Forest Rights) Act 2006 & rules 2007	evidence required for such recognition and vesting of forest land. Some of the key rights so vested are as follows- <ul style="list-style-type: none"> <li>right to hold and live in the forest land under the individual or common occupation for habitation or for self-cultivation for livelihood by a member or members of a forest dwelling Scheduled Tribe or other traditional forest dwellers;</li> <li>community rights such as nistar, by whatever name called, including those used in erstwhile Princely States, Zamindari or such intermediary regimes;</li> <li>right of ownership, access to collect, use, and dispose of minor forest produce which has been traditionally collected within or outside village boundaries;</li> <li>other community rights of uses or entitlements such as fish and other products of water bodies, grazing (both settled or transhumant) and traditional seasonal resource access of nomadic or pastoralist communities;</li> <li>rights including community tenures of habitat and habitation for primitive tribal groups and pre-agricultural communities;</li> <li>rights in or over disputed lands under any nomenclature in any State where claims are disputed;</li> <li>rights for conversion of Pattas or leases or grants issued by any local authority or any State Government on forest lands to titles;</li> <li>rights of settlement and conversion of all forest villages, old habitation, un surveyed villages and other villages in forests, whether recorded, notified or not into revenue villages;</li> <li>right to protect, regenerate or conserve or manage any community forest resource which they have been traditionally protecting and conserving for sustainable use;</li> <li>rights which are recognized under any State law or laws of any Autonomous District Council or Autonomous Regional Council or which are accepted as rights of tribals under any traditional or customary law of the concerned tribes of any State;</li> </ul>	Tribal Welfare Department	tribal area
18.	The Provision of the Panchayats (Extension to the Scheduled Areas) Act, 1996	The Act provides extension of the provisions of Part IX of the Constitution relating to the Panchayats to the Scheduled Areas. Scheduled Areas are defined as per the Clause (1) of Article 244 of the Constitution. The act gives special powers to the Panchayats in case it has been classified as Schedule V area by the constitution. The Panchayats are expected to have special powers given to them through the state Legislatures like: <ul style="list-style-type: none"> <li>the power to enforce prohibition or to regulate or restrict the sale and consumption of any intoxicant;</li> <li>the ownership of minor forest produce;</li> <li>the power to prevent alienation of land in the Scheduled Areas and to take appropriate action to restore any unlawfully alienated land of a Scheduled Tribe;</li> <li>the power to manage village markets by whatever name called;</li> <li>the power to exercise control over money lending to the Scheduled Tribes;</li> <li>the power to exercise control over institutions and functionaries in all social sectors;</li> <li>the power to control over local plans and resources for such plans including tribal sub-plans;</li> <li>The administration and management of the Panchayat is similar to the non- schedule areas, but the Panchayat has immense powers in case of Scheduled Area.</li> </ul>	Gram Panchayat	Applicable only if land procured/to be procured is falling under designated tribal area
19.	The Indian Telegraph Act, 1885	The Indian Telegraph Act, 1885, empowers the Telegraph authorities to use the land / property for telegraph lines without having any ownership or right in the property even for the land occupied by the telegraph line supports or belts covered by overhead wires and the only obligation of the telegraph authority is to compensate for the actual loss / damage to the owner of the property. The relevant section of the Act is as under: “The telegraph authority may, from time to time, place and maintain a telegraph line under, over, along or across, and posts in or upon, any immovable property: Provided that: <ul style="list-style-type: none"> <li>The telegraph authority shall not exercise the powers conferred by this section except for the purpose of a telegraph established or maintained by the Central Government or to be so established or maintained:</li> <li>The Central Government shall not acquire any right other than that of user only in the property under over along across in or upon which the telegraph authority places any telegraph line, or post;</li> <li>Except as hereinafter provided, the telegraph authority shall not exercise those powers in respect of any property vested in or under the control or management of any local authority, without the permission of that authority;</li> <li>In the exercise of the powers conferred by this section, the telegraph authority shall do as little damage as possible, and when it has exercised those powers in respect of any property other than that referred.</li> <li>(e) shall pay full compensation to all persons interested for any damages sustained by them by reason of the exercise of those powers.”</li> </ul>	State Electricity Transmission Company	Applicable for power evacuation
20.	Factories Act, 1948	<ul style="list-style-type: none"> <li>The Act’s objective is to protect workers from being subjected unduly long hours of bodily strain and manual labour. It provides that employees should work in healthy and sanitary conditions and the precautions be taken for their safety and for the prevention of accidents. In order to ensure that the objectives are carried out, local governments are empowered to appoint inspectors to call for returns and to ensure that the prescribed registers are duly maintained.</li> <li>The Act provides for the health, safety, welfare, and other occupational aspects for workers in factories. It is enforced by the state governments through their factory inspectorates.</li> </ul>	Factories Inspector from Labour Department	Obtain factory license prior to operation phase



S.N	Specific Regulation/Policy	Key Requirement(s)	Enforcement Agency	Remarks
		<ul style="list-style-type: none"> <li>It also empowers the state governments to frame rules, so that local conditions prevailing in the state are appropriately reflected in the enforcement, to make the punishments provided in the Act stricter and that opportunities are taken advantage of to make certain other amendments found necessary in the implementation of the Act. <ul style="list-style-type: none"> <li>Based on the central Act, state specific <b>Factories Rules</b> are formulated and enforced by state authorities. Projects that fall within the definition of factory as per the Act, are required to obtain and maintain valid factories license granted by state level Factories Inspectorate.</li> </ul> </li> </ul>		
21.	The Bonded Labour (Abolition) Act 1976	Abolition of Bonded Labour System: (i) The bonded labour system is abolished, and every bonded labourers stands free and is discharged from any obligation to render any bonded labour; (ii) (a) No person is to make any advance of bonded labour, (b) No person is to compel any person to render any bonded labour or other form of forced labour.	Labour Department	Applicable during construction and operation phase
22.	Minimum Wages Act, 1948	<ul style="list-style-type: none"> <li>Minimum Wages Act, 1948 requires the Government to fix minimum rates of wages and reviews this at an interval of not more than 5 years.</li> <li>The minimum wage as prescribed for the industry by the government is required to be paid by the employers to the staff.</li> </ul>	Ministry of Labour, Labour Department	Applicable during construction and operation phase
23.	Workmen's Compensation Act, 1923	<ul style="list-style-type: none"> <li>Workmen's Compensation Act, 1923 requires if personal injury is caused to a workman by accident arising out of and in the course of his employment, his employer shall be liable to pay compensation in accordance with the provisions of this Act.</li> <li>Applicable to employees with less than or equal to a maximum of basic salary of INR 8000 per month</li> </ul>	Ministry of Labour, Labour Department	Applicable during construction and operation phase
24.	The Contract Labour (Regulation & Abolition) Act, 1970 and Rules	<ul style="list-style-type: none"> <li>As per the contract labour act, every principle employer is required to get the establishment registered before employing any contract labour.</li> <li>The contractors are also required to provide at minimum amenities like canteen, urinals, restrooms or alternate accommodation (if night halting labour), first aid, safe drinking water, etc. in case of contractor's failure to provide these amenities, the principle employer is liable to provide such amenities at its cost.</li> </ul>	Ministry of Labour, Labour Department	Applicable during construction and operation phase
25.	The Child Labour (Prohibition and Regulation) Amendment Bill, 2012	<p>The Act prohibits employment of children below 14 years in certain occupations such as automobile workshops, bidi-making, carpet weaving, handloom and power loom industry, mines and domestic work. In light of the Right of Children to Free and Compulsory Education Act, 2009, the Bill seeks to prohibit employment of children below 14 years in all occupations except where the child helps his family after school hours.</p> <ul style="list-style-type: none"> <li>The Act adds a new category of persons called "adolescent". An adolescent means a person between 14 and 18 years of age. The Bill prohibits employment of adolescents in hazardous occupations as specified (mines, inflammable substance and hazardous processes).</li> <li>The penalty for employing a child was increased to imprisonment between 6 months and two years (from 3 months-one year) or a fine of Rs 20,000 to Rs 50,000 (from Rs 10,000-20,000) or both.</li> <li>The Act empowers the government to make periodic inspection of places at which employment of children and adolescents are prohibited.</li> </ul>	Ministry of Labour Labour Department	Applicable during construction and operation phase
26.	ESI Act , 1948 (Employees State Insurance Act, 1948)	<ul style="list-style-type: none"> <li>The ESI Act provides for certain benefits to employees in case of sickness, maternity and employment injury.</li> <li>These includes periodical payments to any insured person in case of his sickness certified by a duly appointed medical practitioner, periodical payments to an insured woman in case of confinement or miscarriage or sickness arising out of pregnancy, confinement, premature birth of child, periodical payments to an insured person suffering from disablement as a result of an employment injury sustained as an employee, or periodical payments to such dependents of an insured person who dies as a result of an employment injury sustained as an employee amongst others. Applicable to employees with less than or equal to a maximum of basic salary of INR 15000 per month.</li> </ul>	Ministry of Labour, Labour Department	Applicable during construction and operation phase
27.	The Employees' State Insurance Act, 1948	<ul style="list-style-type: none"> <li>It applies to all non-seasonal factories.</li> <li>To provide benefits in case of sickness, maternity, and employment injury' and to make provision for certain other matters in relation thereto.</li> <li>all employees in factories or establishments to which this Act applies shall be insured in the manner provided by this Act.</li> <li>The contribution payable under this Act in respect of an employee shall comprise contribution payable by the employer (hereinafter referred to as the employer's contribution) and contribution payable by the employee (hereinafter referred to as the employee's contribution) and shall be paid to the Corporation.</li> </ul>	Labour Department	Applicable during construction and operation phase
28.	The Equal Remuneration Act, 1976	<ul style="list-style-type: none"> <li>Puts in place rules and regulations governing the remuneration payable to workers and employees</li> </ul>	Labour Department	Applicable during construction and operation phase
29.	The Industrial Disputes Act, 1947	<ul style="list-style-type: none"> <li>Every industrial establishment employing twenty or more workmen shall have one or more Grievance Redressal Committee for the resolution of disputes arising out of individual grievances.</li> <li>The Grievance Redressal Committee shall consist of equal number of members from the employer and the workmen.</li> <li>The chairperson of the Grievance Redressal Committee shall be selected from the employer and from among the workmen alternatively on rotation basis every year.</li> <li>The total number of members of the Grievance Redressal Committee shall not exceed more than six: Provided that there shall be, as far as practicable, one-woman member if the Grievance Redressal Committee has two members and in case the number of members is more than two, the number of women members may be increased proportionately.</li> <li>Notwithstanding anything contained in this section, the setting up of Grievance Redressal Committee shall not affect the right of the workman to raise industrial dispute on the same matter under the provisions of this Act.</li> <li>The Grievance Redressal Committee may complete its proceedings within forty-five days on receipt of a written application by or on behalf of the aggrieved party.</li> <li>The workman who is aggrieved of the decision of the Grievance Redressal Committee may prefer an appeal to the employer against the decision of Grievance Redressal Committee and the employer shall, within one month from the date of receipt of such appeal, dispose of the same and send a copy of his decision to the workman concerned.</li> <li>Nothing contained in this section shall apply to the workmen for whom there is an established Grievance Redressal Mechanism in the establishment concerned.</li> </ul>	Labour Department	Applicable during construction and operation phase

S.N	Specific Regulation/Policy	Key Requirement(s)	Enforcement Agency	Remarks
30.	The Interstate Migrant Workmen (Regulations of Employment and Conditions of Service) Act, 1979	<p>The Key provisions of the Act, include:</p> <ul style="list-style-type: none"> <li>Responsibility of payment of wages: 1) A contractor shall be responsible for payment of wages to each inter-state migrant workman employed by him and such wages shall be paid before expiry of such period as may be prescribed; 2) Every principal employer shall nominate a representative duly authorised 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 and may be prescribed; 3) It shall be the duty of the contractor to ensure the disbursement of wages in the presence of the authorize representative of the principal employer; 4) In case the contractor fails to make payment within the prescribed period or make short payment, then the principal employer shall be liable to make payment of the wages in full or the unpaid balance due, as the case maybe, to the inter-State migrant workman 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</li> <li>The wage rate of an interstate migrant worker shall in no case be paid less than the wages fixed under the Minimum Wages Act, 1948, 2. Wages payable to an interstate migrant workman shall be paid in cash.</li> <li>There shall be paid by the contractor to every interstate migrant worker at the time of recruitment, a displacement allowance equal to fifty per cent of the monthly wages payable to him or seventy-five rupees whichever is higher. <ul style="list-style-type: none"> <li>The amount paid to a worker as displacement allowance shall not be refundable and shall be in addition to the wages or other amount payable to him</li> </ul> </li> </ul>	Labour Department	<p>License under the act should be obtained.</p> <p>Applicable during construction and operation phase</p>
31.	The Maternity Benefit Act, 1961	<ul style="list-style-type: none"> <li>Every woman shall be entitled to, and her employer shall be liable for, the payment of maternity benefit at the rate of the average daily wage for the period of her actual absence the period immediately preceding the day of her delivery, the actual day of her delivery and any period immediately following that day.</li> <li>Increases the duration of the maternity leave from 12 to 26 weeks which can be availed prior to 8 weeks from the date of expected delivery (earlier it was 6 weeks prior).</li> <li>From third child onwards, maternity leave to be for 12 weeks which can be availed 6 weeks prior.</li> </ul> <p>Employer to permit a woman to work from home, if the nature of work permits her to do so and the same can be availed after the completion of her maternity leave for a duration mutually decided. Woman to be informed at the time of appointment, of the maternity benefits available, either in writing or electronically.</p>	Labour Department	Applicable during construction and operation phase
32.	The Payment of Bonus Act, 1965	<p>Every employee shall be entitled to be paid by his employer in an accounting year, bonus, in accordance with the provisions of this Act, provided he has worked in the establishment for not less than thirty working days in that year. Further, every employer shall be bound to pay to every employee in respect of the accounting year commencing on any day in the year 1979 and in respect of every subsequent accounting year, a minimum bonus which shall be 8.33 per cent. of the salary or wage earned by the employee during the accounting year or one hundred rupees, whichever is higher, whether the employer has any allocable surplus in the accounting year.</p> <p>An employee shall be disqualified from receiving bonus under this Act if he is dismissed from service for.</p> <ul style="list-style-type: none"> <li>fraud; or</li> <li>riotous or violent behavior while on the premises of the establishment; or</li> <li>theft, misappropriation, or sabotage of any property of the establishment</li> </ul>	Labour Department	Applicable during construction and operation phase
33.	The Payment of Wages Act, 1936	<ul style="list-style-type: none"> <li>This Act was passed with the aim of regulating the payment of wages but excluding bonus/pension/PF/gratuity etc. to persons employed in any factory, either directly or indirectly through a sub-contractor.</li> <li>The Act holds the employer solely responsible for the payment of wages to the employees.</li> <li>The Act also specifies the need for a timeline for the wage payment, and the provisions for fines and deductions amongst other details pertaining to wages.</li> </ul> <p>No wage period shall exceed one month</p>	Labour Department	Applicable during construction and operation phase
34.	Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013	<ul style="list-style-type: none"> <li>No woman shall be subjected to sexual harassment at any workplace.</li> <li>The following circumstances, among other circumstances, if it occurs or is present in relation to or connected with any act or behaviour of sexual harassment may amount to sexual harassment:- <ul style="list-style-type: none"> <li>Implied or explicit promise of preferential treatment in her employment; or</li> <li>Implied or explicit threat of detrimental treatment in her employment; or</li> <li>Implied or explicit threat about her present or future employment status; or</li> <li>Interference with her work or creating an intimidating or offensive or hostile work environment for her; or Humiliating treatment likely to affect her health or safety.</li> </ul> </li> </ul>	Labour Department	Applicable throughout Project lifecycle
35.	The Trade Unions Act, 1926	<p>Any seven or more members of a Trade Union may, by subscribing their names to the rules of the Trade Union and by otherwise complying with the provisions of this Act with respect to registration, apply for registration of the Trade Union under this Act.</p> <ul style="list-style-type: none"> <li>The admission of ordinary members who shall be persons actually engaged or employed in an industry with which the Trade Union is connected, and the admission of the number of honorary or temporary members to form the executive of the Trade Union</li> </ul>	Labour Department	Applicable during construction and operation phase
36.	Persons with Disabilities Act, 1995 and Persons with Disability Rules 1996	<ul style="list-style-type: none"> <li>Give effect to the proclamation on the full participation and equality (equal opportunities) of people with disabilities and protection of rights.</li> <li>The employer in every establishment shall furnish such information or return as may be prescribed in relation to vacancies appointed for person, with disability that have occurred or are about to occur in that establishment to such Special Employment Exchange as may be prescribed and the establishment shall thereupon comply with such requisition.</li> <li>Every employer shall maintain such record in relation to the person. With disability employed in his establishment in such form and in such manner as may be prescribed by the appropriate Government</li> </ul>	Labour Department	Applicable during construction and operation phase

S.N	Specific Regulation/Policy	Key Requirement(s)	Enforcement Agency	Remarks
		<ul style="list-style-type: none"> <li>Every appropriate Government shall appoint in every establishment such percentage of vacancies not less than three per cent. for persons or class of persons with disability of which one per cent. Each shall be reserved for persons suffering from- <ul style="list-style-type: none"> <li>Blindness or low vision.</li> <li>Bearing impairment.</li> <li>Loco motor disability or cerebral palsy, in the posts identified for each disability:</li> </ul> </li> <li>Provided that the appropriate Government may, having regard to the type of work carried on in any department or establishment, by notification subject to such conditions, if any, as may be specified in such notification, exempt any establishment from the provisions of this section.</li> </ul>		
37.	Private Security Agencies (Regulation) Act, 2005	<ul style="list-style-type: none"> <li>An Act to provide for regulations of private security agencies and for matters connected therewith or incidental thereto. Per the provision of the Act – No person shall carry on or commence the business of private security agency, unless he/she holds a license issued under this Act</li> </ul>	State Private Security Agency	Applicable during construction and operation phase
38.	Building and Other Construction Workers Act 1996	<ul style="list-style-type: none"> <li>The act aims at regulating the employment and conditions of service of building and other construction workers and to provide for their safety, health, and welfare measures, and is hence applicable to construction phase of projects.</li> <li>The Act stipulates that every establishment wherein five hundred or more building workers are employed, the employer shall constitute a Safety Committee, and shall also appoint a qualified safety officer. Accidents are required to be notified to authorities.</li> <li>State specific rules provide measures to be taken for the safety and health of building workers for ensuring their safety, health, and protection, during such employment. These include but not limited to, scaffolding, handling or use of explosives, installation, use and maintenance of transporting equipment, hoists, lifting appliances and lifting gear, periodical testing and examination requirements, adequate and suitable lighting requirements, confined space safety, material handling safety, machine guarding, fire safety, electrical safety, height works, safety policy requirement, medical facilities etc.</li> <li>Every employer shall register the establishment<sup>1</sup> and obtain a certificate of registration to from registering officer under this act.</li> </ul>	Building and Other Construction Workers' Welfare Board.	Applicable during construction phase
39.	Motor Vehicle Act, 1988 and Rules and subsequent amendments	<ul style="list-style-type: none"> <li>The Act provides in detail the legislative provisions regarding licensing of drivers/conductors, registration of motor vehicles, control of motor vehicles through permits, special provisions relating to state transport undertakings, traffic regulation, insurance, liability, offences, and penalties, etc.</li> <li>Refer <a href="https://legislative.gov.in/sites/default/files/A1988-59.pdf">https://legislative.gov.in/sites/default/files/A1988-59.pdf</a></li> </ul>	Ministry of Road Transport and Highways	Applicable during construction and operation phase
40.	The Public Liability Insurance Act, 1991	<ul style="list-style-type: none"> <li>The Act applies to all owners associated with the production or handling of any hazardous chemicals (list of hazardous chemicals and activities to which PLI is applicable defined in the Act).</li> <li>Under the Act, the owner shall provide immediate relief to the persons affected by accident occurring while handling any hazardous substance. Where death or injury to any person (other than a workman) or damage to any property has resulted from an accident, the owner shall-be liable to give such relief as specified in the Act.</li> <li>Every owner handling any hazardous substance, is required to put in place one or more insurance policies to ensure that they are in position to give relief to third parties in case of liabilities.</li> <li>The owner is required to get the insurance policy, Renewed from time to time before the expiry of the period of validity.</li> </ul>	MoEF&CC	Applicable during construction and operation phase
41.	State specific Fire Safety Act and Rules	<ul style="list-style-type: none"> <li>The primary responsibility for fire prevention and fire protection lies primarily with State Governments. The rules for fire prevention and fire protection are laid in the form of State Regulations or Municipal By-Laws.</li> <li>Fire permits are typically required to be obtained by high rise buildings from local fire authorities before occupancy, and various fire-fighting provisions are required to be put in place to ensure safety of occupants.</li> <li>2-staged Fire NOC to be obtained from concerned authority</li> <li>Fire Fighting Scheme with drawings, conforming to National Building Code of India, the Disaster Management Act, 2005 (53 of 2005), the Factories Act, 1948 (Act 63 of 1948) should be submitted for appraisal and grant of provisional fire safety certificate.</li> <li>This is later followed up for grant of final fire safety certificate after all the suggested fire safety measures are implemented on site for occupancy of the building.</li> <li>The National Building Code (NBC), which is the basic model code in India on matters relating to building construction and fire safety. The Part 4 (Fire and Life Safety) of NBC contain the fire safety norms through detailed provisions on fire prevention, life safety and fire protection</li> </ul>	State Specific Fire Department	Applicable during construction and operation phase. Provisional and final fire NOC should be obtained.
42.	Electricity Act 2003	<p><b>Section 67</b> Section 67 of the Electricity Act 2003 (along with Section 68 discussed below) deal with the powers of the central/state authority on the use of land for Right of Way (RoW), erection of transmission towers/electric poles. However, the provisions of Electricity Act under Section 67 apply on the licensee (as appointed by the government) who has not been granted the powers of the Telegraph Authority under the Telegraph Act, 1885.</p> <p>The licensee, subject to the terms and conditions of the license, as awarded by the government, may carry out work to lay down supply lines, that includes –</p>	Electricity Department /District Collector	Applicable during construction phase

<sup>1</sup> any establishment belonging to, or under the control of, Government, anybody corporate or firm, an individual or association or other body of individuals which or who employs building workers in any building or other construction work; and includes an establishment belonging to a contractor but does not include an individual who employs such workers in any building or contraction work in relation to his own residence the total cost of such construction not being more than rupees ten lakhs.



S.N	Specific Regulation/Policy	Key Requirement(s)	Enforcement Agency	Remarks
		<ul style="list-style-type: none"> <li>• To open/break the soil and pavement of any street, railway.</li> <li>• To open/break any sewer, drain or tunnel in or under any street, railway.</li> <li>• To lay down and place electric lines, electrical plant, and other works</li> <li>• To repair existing electrical supply lines</li> </ul> <p>In order to carry out works, as incidental to, and required for the laying of electrical supply lines, the appropriate government (central/state), may specify the conditions and grant the necessary permissions, particularly on matters relating to –</p> <ul style="list-style-type: none"> <li>• Consent of the local authority, owner, or occupier of the land parcel on which work is to be carried out, as required.</li> <li>• The duration of the contract of the licensee, and the nature of work</li> <li>• Determining the compensation amount, procedure of deposit of compensation amount payable by the licensee and payment process to the persons affected by the work to be carried out.</li> <li>• The rights of the owner/occupier of the land parcels that is being utilized for the works to be carried out by the licensee.</li> <li>• The procedure for fencing, guarding, and other safety measures relating to work on streets, railways and for alteration of the position of pipes, electric lines, telegraph lines.</li> <li>• The manner of restoration of property affected by such works and maintenance of the same.</li> <li>• Matters relating to disputes on compensation amount shall be determined by an “appropriate commission”.</li> </ul> <p>the execution of works, involving erection of towers and connection of overhead lines, are done, only after a detailed field study, by identifying a feasible route of the proposed transmission line and by selecting a suitable corridors, by avoiding densely populated residential areas, span length, the angle of deviation, the extent of damage, likely to be caused, while erecting towers, maintenance cost of electric lines and towers and more particularly, the public interest in providing electricity to a large section of people and industrial establishments.</p> <p><b>Section 68</b> The section provides for process of approval from the appropriate government for stringing of overhead lines, and/or maintenance of existing overhead lines. While section 67 contains provisions granted to the licensee by the government regarding erection of towers, this section deals with structures under the transmission line (TL) RoW</p> <p>Any tree, or any structure standing near overhead line, or has been placed near an overhead line after the approval of the RoW, and erection of towers, can be removed or dealt with as accordingly by the licensee, after obtaining necessary approvals from appropriate government. In case of any tree, structure in existence prior to the approval of the RoW and subsequent construction activities in the RoW, compensation shall be awarded to such persons with ownership of the trees/structures by the licensee. (Tree includes shrub, jungle, hedge).Section 68 of the Act contemplates that the appropriate government may, by rules made in this behalf, delegate the powers for carrying out over headline tower works and such power cannot be delegated by anyone else especially without prior permission from the appropriate government. Section 68 (2) (c) of the Indian Electricity Act prescribe the period of notice to be given prior to carrying out the works.</p> <p><b>Section 164m</b>This section grants the equivalent powers as vested to the telegraph authority through the Telegraph Act of 1885 to the private licensee (electricity generation and Distribution Company) for placing/erecting TL towers, and procurement of easement rights for RoW (Ministry of Power, Procedure for Obtaining Authorization U/s 164 of the Electricity Act, 2003, 2016). The appropriate government may elevate the status of a private company to the status of a public body and confer the powers as prescribed in the Telegraph Act upon the licensee, upon the submission of request from the company. In the submission of request, the licensee will furnish the following details: Newspaper publication of the scheme (dissemination of information in public domain), Authenticated maps showing the details of the selected route alignment, along with justification.</p>		
43.	Indian Telegraph Act 1885	<p><b>Section 10</b> Power for telegraph authority to place and maintain telegraph lines and posts. The telegraph authority may, from time to time, place and maintain a telegraph line under, over, along, or across, and posts in or upon, any immovable property subject to the following conditions:</p> <ul style="list-style-type: none"> <li>• The telegraph authority shall not exercise the power conferred by this section except for the purpose of a telegraph established or maintained by the Central government of India.</li> <li>• The central government shall not acquire any right other than that for use of the property for placing telegraph lines passing either under, over, along or across the property.</li> <li>• The central authority shall not exercise its powers with respect to any property which is under the control or management of any local authority, without permission of that authority.</li> <li>• given the powers under this section, the telegraph authority shall minimize/avoid damage to the property to the extent possible and shall pay full compensation to all persons interested in any damage sustained by them due to the powers exercised by the telegraph property with respect to the land.</li> </ul> <p><b>Section 16</b></p>	Electricity Department /District Collector	Applicable during Construction Phase

S.N	Specific Regulation/Policy	Key Requirement(s)	Enforcement Agency	Remarks
		<p>Section 16 of the Act is applicable, in continuation to Section 10, and is triggered when disputes arise on the land parcel upon which the telegraph authority will exercise its powers. The disputes relate to either compensation or claim of ownership of the land parcel, which is not under the ownership of the state/local government authority. The provisions of this section are as follows:</p> <p>In situations where the powers of the telegraph authority on the land parcel (as acquired under Section 10) is contested/resisted, the District J (DM) of the concerned district where the land parcel is situated, can issue permissions to the telegraph authority to exercise its powers./Disputes that might arise regarding the compensation amount (as decided under Section 10), will be settled by the District Judge, upon application regarding the insufficiency of the compensation value made by the concerned parties having ownership on that parcel./Disputes that might arise regarding the parties claiming ownership on the property upon which the telegraph authority will exercise its powers, will be settled by the District Judge after hearing claims from all parties asserting a claim in the compensation amount. If there are multiple ownerships, the compensation shall be decided in proportions in which the persons are entitled to it. The telegraph authority, on its part, will deposit the entire compensation amount, as decided to the District court.</p> <p>If any person resists the powers of the telegraph authority even after the permission is granted by the DM, the person shall be convicted under Section 188 of the IPC for criminal offence.</p> <p>In the case of Telegraph Authority, there is no question of obtaining any consent from the landowner unlike in case of non-Telegraph authority governed by the provisions of 67 of the 2003 Act and Section 12 to 18 of Indian Electricity Act, 1910./In case of Telegraph Authority, there is no question of obtaining any consent from the landowner unlike in case of non-telegraph authority governed by the provisions of 67 of the 2003 Act and Section 12 to 18 of Indian Electricity Act, 1910.</p>		
44.	Guidelines for payment of compensation towards damages in regard to Right of Way for Transmission Line, 2015 issued by Ministry of Power	<p>The compensation for obtaining of easement rights for Transmission Line's RoW and tower footprint will be paid at minimum as per the "Guideline for payment of compensation towards damages in regard to Right of Way for Transmission line" issued by the Ministry of Power.</p> <p>The details of the compensation as per the guideline, are presented below:</p> <p>Compensation @ 85% of land value as determined by District Collector, or any other authority based on Circle rate/Guideline value/Stamp Act rates for tower base area (between four legs) impacted severely due to installation of tower/pylon structure.</p> <p>Compensation towards diminution of land value in the width of Right of Way (RoW) corridor due to laying of transmission line and imposing certain restriction would be decided by the States as per categorization/type of land in different place of States, subject to a maximum of 15% of land value as determined based on Circle rate/guideline value/stamp rates</p>	Electricity Department /District Collector	Applicable during Construction Phase
45.	Central Electricity Authority (Measures relating to Safety and Electricity Supply) Regulations, 2010	<p>The Central Electricity Authority Regulation, 2010 are regulations framed by Central Electricity Authority of India under Indian Electricity Act, 2003, to regulate measures relating to safety and electric supply for persons engaged in the generation, transmission, distribution or trading of electricity, or use of electricity supplied or installation, maintenance or use any electric line or electric plant. Some of the provisions under this regulation include:</p> <ul style="list-style-type: none"> <li>Approval in writing form Electrical Inspector for installation of DG sets of more than 10KW capacity.</li> <li>Earth-Leakage Circuit Breaker (ELCB) Provision to all temporary electrical installations.</li> <li>Provide insulating mats or floors conforming to IS-15652: 2006 at front of electric control panels.</li> <li>Ensure proper earthing of all non-current carrying metal parts of switchgear and control panels.</li> <li>Affix permanently a danger notices in Hindi or English and the local language of the district, with a sign of skull and bones of design as per relevant ISS No. 2551.</li> </ul> <p>HFE will comply with the provisions of Central Electricity Authority Regulation, 2010</p>	Competent Authority	Applicable during Construction Phase
<b>Green Hydrogen Specific</b>				
46.	Static and Mobile Pressure Vessels (Unfired) Rules 2016	<p>The Static and Mobile Pressure Vessels (Unfired) Rules 2016 is a set of guidelines and regulations that govern the design, fabrication, testing, and maintenance of unfired pressure vessels in India. Unfired pressure vessels are containers used to store and transport pressurized fluids or gases that are not subjected to direct fire or heat.</p> <p>Some of the key provisions include:</p> <ul style="list-style-type: none"> <li>No person shall store any compressed gas in any vessel under and in accordance with the conditions of a license granted under these rules.</li> <li>"Pressure Vessel" means any closed metal container of whatever shape, intended for the storage and transport of any compressed gas which is subjected to internal pressure and whose water capacity exceeds <b>one thousand litres</b> and includes inter connecting parts and components thereof up to the first point of connection to the connected piping and fittings, but does not include containers wherein steam or other vapor is or is intended to be generated or water or other liquid is or is intended to be heated by the application of fire or the products of combustion or by electrical means, heat exchangers, evaporators, air receivers, steam type digesters, steam type sterilizers, autoclaves, reactors, clarifiers, pressure piping components such as separators or strainers and vessels containing a liquid under a blanket of compressed inert gas.</li> </ul> <p>Petroleum and Explosives Safety Organization (PESO) is the administrative body for hydrogen cylinders, valves including hydrogen dispensing.</p>	Applicable during construction and operation phase	Static and Mobile Pressure Vessels (Unfired) Rules 2016
47.	Central Motor Vehicles Rules 1989	<p>The transportation of goods of dangerous or hazardous nature to human life is regulated by the Central Motor Vehicles Rules 1989. These rules provide guidelines for the safe transportation of such goods on Indian roads. Every owner of a goods carriage transporting any dangerous or hazardous goods shall, in addition to complying with the provisions of any law for the time being in force in relation to any category of dangerous or hazardous goods, comply with the following conditions, namely-</p> <ul style="list-style-type: none"> <li>every such goods carriage, carrying the same type of dangerous or hazardous goods (whether in bulk or in packages), shall display a distinct mark of the class label appropriate to the type of dangerous or hazardous goods specified in column 3 of the Table I to Rule 137.</li> <li>every package containing dangerous or hazardous goods shall display the distinct class labels appropriate to the type of dangerous or hazardous goods specified in column 3 of the Table I to Rule 137.</li> <li>in the case of packages containing goods listed in Table 111 in Rule 137 and which represents two hazards as given in column 2 thereof, such packages shall display distinct labels to indicate both the hazards.</li> </ul>	Applicable during construction and operation phase	Central Motor Vehicles Rules 1989

S.N	Specific Regulation/Policy	Key Requirement(s)	Enforcement Agency	Remarks
		<ul style="list-style-type: none"> <li>every goods carriage carrying any dangerous or hazardous goods shall be equipped with safety equipment.</li> </ul> <p><b>Note: Since Hydrogen falls in the list of Hazardous Goods as provided in the Table III the Transportation shall be as per the provisions laid in CMVR Rules 1989.</b></p>		
48.	<i>The Public Liability Insurance 1991</i>	<p>The Public Liability Insurance Act of 1991 is a law that provides coverage for damages or injuries caused to third parties due to the transportation of hazardous substances. This includes the transportation of hydrogen gas, which is classified as a hazardous substance under the law. Transportation of hydrogen gas requires strict adherence to safety regulations to prevent accidents that could result in injury or damage to property. The Public Liability Insurance Act of 1991 requires that any person or organization that transports hazardous substances, including hydrogen gas, must obtain public liability insurance coverage. This insurance coverage is intended to provide compensation for any damages or injuries that may occur due to an accident during transportation. The coverage must be obtained before the transportation of the hazardous substance begins, and the policy must be maintained throughout the duration of the transportation.</p> <p>As per the Rule relating to the <i>Contribution of owner to the Environmental Relief Fund-</i></p> <ul style="list-style-type: none"> <li>An owner shall contribute to the Environmental Relief fund a sum equal to the premium payable to the insurer.</li> <li>Every contribution to the Environmental Relief Fund under sub-rule shall be payable to the insurer, together with the amount of premium.</li> </ul> <p>The contribution receiving by the insurer shall be remitted as per the scheme under section 7A of the Act.</p>	Competent Authority	Applicable during operation phase
49.	<i>IS 18149 : 2023</i>	<p>The IS 18149:2023 – Transportation of Dangerous Goods — Guidelines have been published by the Bureau of Indian Standards (BIS) with the aim of enhancing safety in the transportation of hazardous materials. These guidelines have been formulated by BIS under the Transport Services Sectional Committee. In <i>Additional Provisions for Different Mode of Transportation</i>, following are the modes of transport available along with relevant act/rule:</p> <ul style="list-style-type: none"> <li><b>Transportation by Road-</b>Compliance of <i>Carriage by Road Act, 2007</i> and the <i>Central Motor Vehicles Rules, 1989</i> shall be ensured for transportation of dangerous goods by road.</li> <li><b>Transportation by Sea-</b>Compliance of <i>International Maritime Dangerous Goods (IMDG) code</i> shall be ensured for transportation of dangerous goods by sea.</li> <li><b>Transportation by Rail-</b>Compliance of <i>Red Tariff Rules (RED TARIFF No. 20)</i> of the Ministry of Railways shall be ensured for transportation of dangerous goods by rail.</li> <li><b>Transportation by Air-</b>Compliance of International Civil Aviation Organization’s Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO TI) and <i>The Aircraft (Carriage of Dangerous Goods) Rules, 2003</i> shall be ensured for transportation of dangerous goods by air.</li> <li><b>Transportation by Inland Waterways-</b> In addition to other relevant and applicable requirements covered in this standard, the compliance of International Carriage of Dangerous Goods by Inland Waterways (ADN) shall be ensured for transportation of dangerous goods by inland waterways.</li> </ul> <p><b>Note: As per Clause 5.1, Hydrogen falls in Division 2.1 of Flammable gases</b></p>	Competent Authority	Applicable during construction and operation phase
50.	<i>The International Maritime Dangerous Goods (IMDG) Code</i>	<p>The International Maritime Dangerous Goods (IMDG) Code is a set of guidelines established by the International Maritime Organization (IMO) to ensure the safe transportation of dangerous goods by sea. The code provides guidance on the classification, packaging, marking, labelling, and handling of dangerous goods during sea transport. The code is mandatory under the International Convention for the Safety of Life at Sea (SOLAS) for all vessels carrying dangerous goods in international waters.</p> <p><b>Note: As per the Code, Hydrogen falls in Class 2.1 of Flammable gases</b></p>	Competent Authority	Applicable during construction and operation phase
51.	<i>Mines And Minerals (Development And Regulation) Act, 1957</i>	<p>The <b>Mines and Minerals (Regulation and Development) Act (1957)</b> is an Act of the Parliament of India enacted to regulate the mining sector in India. It was amended in 2015 and 2016. This act forms the basic framework of mining regulation in India. This act is applicable to all mineral except minor minerals and atomic minerals. It details the process and conditions for acquiring a mining or prospecting license in India. Mining minor minerals comes under the purview of state governments. River sand is considered a minor mineral. For mining and prospecting in forest land, prior permission is needed from the Ministry of Environment and Forests.</p> <p><b>Note: Lithium, beryllium and zirconium are required in huge quantities for manufacturing of electrolyzers. Government is planning to remove the atomic minerals which falls in Part B of the First Schedule of this Act that currently prohibits production by private companies.</b></p>	Competent Authority	Applicable during construction and operation phase
52.	<i>The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013</i>	<p>The <b>Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (RFCLARR)</b>, regulates the process of land acquisition for public purposes in India. The main aim of this act is to ensure fair compensation to landowners whose land is acquired for public purposes. The act mandates that the consent of at least 70% of landowners is required for acquisition of land for public-private partnership projects and 80% for private companies. The act also ensures that the landowners are adequately compensated and provided with rehabilitation and resettlement assistance in case of displacement.</p> <p><b>Note: Construction of pipelines and establishing new factories for transportation and production of Green hydrogen may require acquisition of private/government land. The fourth schedule of this Act includes The Petroleum and Minerals Pipelines (Acquisition of Right of User in Land) Act, 1962 (50 of 1962) which states that provisions of the Act does not apply in certain cases or apply with certain modifications.</b></p>	Competent Authority	Applicable during construction and operation phase

## 2 APPENDIX B: Environment and Social (E&S) Screening Checklist

HFE will undertake preliminary E&S screening for the sites post land identification, but prior to procurement of the land.

The following aspects are required to be considered during site screening:

- Understanding of meteorological factors such as wind pattern, cyclones, rainfall and extreme climate risks and events, etc.
- Review of socio-political scenarios, which broadly considers the land’s performance in dealing with social issues, especially land purchase, and ease of doing business at local level
- Review of notifications on eco-sensitive and eco-fragile zone
- Broad understanding of ecological setup of the location to determine if there are any significant impacts on protected areas, endangered wildlife, national heritage sites or eco-sensitive zones
- Potential risks and impacts on the nearby community, such as impacts on ecosystem services, community exposure to disease and likely emergency situations for the community resulting from operations of their renewable energy portfolio projects
- Confirmation on compliance of the purchased/leased land to applicable state level/national laws and government policies, presence of the necessary legal documents with respect to the land title vetted by reputed legal firm and shall confirm no material pending legal issues
- Avoid and minimize any negative and adverse impact by ensuring the following:
  - Maintain adequate distance from large lakes, rivers and river crossings as per the applicable laws and/or technical requirements of the project
  - Avoid areas of religious, cultural or archaeological significance, to the extent possible
  - Avoid sites that requires the relocation of indigenous peoples or schedule tribe rom lands and natural resources, to the extent possible, subject to traditional ownership or under customary use or significantly impact their cultural heritage
  - Avoid sites falling within or close to eco-sensitive zones of wildlife sanctuaries, national parks and other protected areas and have the potential to disturb critical habitat
  - Avoid locations that involve diversion of forestland
- Ensure that the land leased does not have any encumbrance such as other title/lease holders
- Ensure that the purchase/leasing process is not adversely affecting any dependents on the land such as agricultural labourers, pastoralists or squatter or encroachers or other form of informal land users<sup>2</sup>. However, HFE will not include informal land users as part of the compensation process or under the purview of this ESG MF if land users ask for any claim or compensation after the cut-off date<sup>3</sup>

### 2.1 Detailed Screening Checklist for E&S aspects

A detailed E&S screening checklist has been provided below. ESG MF Committee to ensure the following is completed prior to moving ahead with the project development decision.

S. No.	Criteria	Yes	No	Remarks
<b>Project Details</b>				

1. Planned Power Infrastructure and capacity

<sup>2</sup> If the land procurement will result in any form of displacement, then HFE to undertaken detailed impact assessment/risk assessment and prepare the associated plans to mitigate the impact.

Further, for this ESG MF, informal land users are those who have no recognizable legal right or claim to the land or assets they occupy or use. This includes people using the land under customary law, but whose rights are not recognized under national laws. Informal land users may include occupants of state-owned land that lack legal permission to occupy the land, as well as people who have settled on the land without any legal claim. Informal land users may also include seasonal or temporary users of the land, such as herders, hunters, or gatherers.

<sup>3</sup> Cut-off date: The date prior to which the census or asset inventory is carried out, and the eligibility for compensation and other assistance is established. Persons moving into the project area after the cut-off date are not eligible for compensation or other assistance. Similarly, fixed assets (such as built structures, crops, fruit trees, and woodlots) established after the date of completion of the assets inventory, or an alternative mutually agreed upon date, are not eligible for compensation.

S. No.	Criteria	Yes	No	Remarks
2.	Planned Power Evacuation details to include <ul style="list-style-type: none"> <li>• Nearest Substation</li> <li>• Approximate line length from the Project Sites to S/S</li> <li>• Crossing of Highways / railway line / water body / forest land / eco sensitive zone required by Transmission Line for interconnection, if any</li> <li>• Substation Voltage level</li> <li>• Approximate Distance of S/S from the proposed project</li> <li>• Availability of Bay Extension at the present S/S for the planned evacuation voltage</li> <li>• Transformer Capacity at the S/S and its installation date</li> </ul> Peak Load on the Transformer			
3.	Name of Surveyor Date Signature			

### E&S Screening

4.	Land Area			
5.	Nearest Village, Town, City, Railway station, airport			
6.	Approach Road (Kutch, Cement, Bitumen, Tar, or other type of road) and the nearest black topped road			
7.	Is the Project located in ecologically sensitive zones (10 km)?			
8.	Is there any Wildlife sanctuary, Bio- reserve, National Park or notified Eco Sensitive Zone in the area of influence (i.e., within 10 km)?			
9.	Are there any Reserve forests, Protected Forest, or reserved land in the area of influence?			
10.	Are there any cultural heritage objects, sites and structures can be found (e.g., sites of archaeological, geological, historical, or religious interest)?			
11.	Coastal Areas - Site falling within High Tide line (HTL) as per CRZ notification			
12.	Is the site low lying or prone to localised flood?			
13.	Is the site at a sufficient distance from National Highway/ State Highway and Railway line?			
14.	Is the site located distally from flood plains, river etc.?			
15.	Presence of Cultural heritage or Archaeological Survey of India (ASI) Categorised monuments falling under the project or associated facility boundary. Further, the project or associated facilities are stopping the access of such Cultural Heritage.			
16.	Site is prone to cyclonic conditions			
17.	Site is prone to Flooding including both flash and river flooding			
18.	Site is prone to highly seismic activities			
19.	Site is prone to draught like situation			

S. No.	Criteria	Yes	No	Remarks
20.	Site is prone to soil erosion			
21.	Site is prone to landslide			
22.	Availability of sufficient water and what is the source of water in the area?			
23.	Ground water dependence and CGWA rating (notified area/overexploited area/semi critical)			
24.	Is the site home to any endemic fauna/floral population or presence of any critical or endangered species?			
25.	Is the land being used for economic/livelihood purposes by formal land users?			
26.	Any informal land user(s)' dependence on land?			
27.	Are there any residences in the land that will need to be removed?			
28.	Is the land categorised as tribal land?			
29.	Presence of Schedule V <sup>4</sup> area in the project or associated facilities area or any indigenous population?			
30.	Presence of any physical structures/houses on site? If so, which functions do they serve (dwelling, commercial, health/education etc)			
31.	Is there any settlement near the boundary of the land parcel?			
32.	What is the status on the land process? Description of needed land for the project, plans/status for land procurement or lease arrangements, Easements/RoWs,			
33.	Will land acquisition/purchase involve displacement of people and resettlement and is enough land available for the resettlement?			
34.	Will the project change the socioeconomic profile of the area?			
35.	In case there is no disruption of indigenous community life as a whole, will there be loss of housing, land, crops, trees, and/or other fixed projects owned or controlled by individual indigenous households?			
36.	Does the land involve conversion from agricultural to non-agricultural use?			

<sup>4</sup> A Schedule V area is an area that is declared by the President of India as a Scheduled Area under the Fifth Schedule of the Constitution. The Fifth Schedule deals with the administration and control of Scheduled Areas and Scheduled Tribes in any state except the four states of Assam, Meghalaya, Tripura and Mizoram<sup>3</sup>. The criteria for declaring an area as a Scheduled Area are preponderance of tribal population, compactness and reasonable size of the area, under-developed nature of the area, and marked disparity in economic standard of the people<sup>1</sup>. The Governor of each state having Scheduled Areas has special powers and responsibilities regarding the administration and welfare of these areas<sup>1</sup>. The President can also establish a Tribes Advisory Council (TAC) in any state having Scheduled Areas or Scheduled Tribes to advise on matters pertaining to their welfare and advancement<sup>1</sup>. There are 10 states in India that have Scheduled Areas: Andhra Pradesh, Jharkhand, Gujarat, Himachal Pradesh, Maharashtra, Madhya Pradesh, Chhattisgarh, Orissa, Rajasthan and Telangana<sup>1</sup>.

(1) Scheduled and Tribal Areas - Indian Polity Notes - Prepp. <https://prepp.in/news/e-492-fifth-scheduled-areas---scheduled-and-tribal-areas-indian-polity-upsc-notes>.

(2) Fifth Schedule Areas — Vikaspedia. <https://www.vikaspedia.in/social-welfare/scheduled-tribes-welfare/fifth-schedule-areas>.

(3) Scheduled and Tribal Areas - UPSC GS-II Notes - BYJU'S. <https://byjus.com/free-ias-prep/scheduled-and-tribal-areas/>.

(4) Scheduled Area of Rajasthan - RajRAS | RAS Exam Preparation. <https://www.rajras.in/rajasthan/tribes/scheduled-area/>.

(5) Amendment in Schedule V of Companies Act, 2013- Managerial remuneration. <https://taxguru.in/company-law/amendment-schedule-companies-act-2013-managerial-remuneration.html>.



S. No.	Criteria	Yes	No	Remarks
37.	Is security an issue in the nearby project area? Is there any threat from local outfits/ terror groups?			
38.	Community Unrest in the area			
39.	Can the issues like vandalism and theft be addressed and what would be the possible cost			
40.	Any consultations with local households and/or communities regarding the project? If yes, please describe and document outcome, positive as negative.			
41.	Are any of these risks or impacts going to apply for the surrounding community following from planned project activities? (More than one may be selected) <ul style="list-style-type: none"> <li>• <input type="checkbox"/> Danger of fire or explosions</li> <li>• <input type="checkbox"/> Transport / handling of hazardous goods</li> <li>• <input type="checkbox"/> Traffic with heavy load vehicles</li> <li>• <input type="checkbox"/> Flooding (e.g., from water reservoirs/ dams)</li> <li>• <input type="checkbox"/> Influx of migrant / temporary workers</li> <li>• <input type="checkbox"/> Overland lines (&gt;200 kV)</li> <li>• <input type="checkbox"/> Armed security forces</li> <li>• <input type="checkbox"/> Construction Site</li> <li>• <input type="checkbox"/> Limiting access or changes to basic necessities (e.g., access to water bodies or communal land, changes in water quality or quantity, changes in soil or air quality)</li> <li>• <input type="checkbox"/> Noise</li> <li>• <input type="checkbox"/> Smell</li> </ul>			
42.	Have EPC and O&M contractors been screened/selected? If yes, what is the status on the contract negotiation process?			
43.	Are requirements on E&S in the legal agreement with the contractor ? (Refer Appendix M, Section 13.2.1 for Details on E&S Clauses)			
44.	Will PS5 <sup>5</sup> triggered? (Refer to table 2-2 of the ESG MF main document) Y/N			
45.	Will PS6 <sup>6</sup> be triggered? Y/N			
46.	Will PS7 <sup>7</sup> be triggered? Y/N			
47.	Will PS 8 <sup>8</sup> be triggered? Y/N			
48.	Will the ESIA need to focus on special topics (physical/economic displacement, biodiversity, livelihood restoration, indigenous/other vulnerable groups of people, cultural values?)			

<sup>5</sup> Land Acquisition and Involuntary Resettlement

<sup>6</sup> Biodiversity Conservation and Sustainable Management of Living Natural Resources

<sup>7</sup> Indigenous People

<sup>8</sup> Cultural Heritage

## 2.2 Additional screening consideration for WTGs

- Areas like national parks, forest, bird sanctuaries, natural/cultural heritage sites, sites of archaeological importance and sites of special scientific interest and other important landscapes (wetlands, Eco sensitive zones<sup>9</sup>) should not be considered for wind farms.
- Avoid siting wind farms close to airports (or ports and within known flight path envelopes or shipping lanes. Don't consider any wind turbine within a radius of 20 (twenty) kilometres from the nearest aerodrome reference Point of the civil and defence aerodromes<sup>10</sup>
- Proximity to existing energy facilities and aviation radar (up to 10kms)<sup>11</sup> should be avoided.
- Proposed WTG locations shall be maintained at a distance of  $HH + \frac{1}{2} RD + 5m$  (Hub Height+ Half Rotor Diameter +5 meters) from Public Roads, railway tracks, highways, public institutions<sup>12</sup> and EHV lines<sup>13</sup>.
- Proposed WTG location should not be selected within 500 m of any dwelling unit<sup>14</sup> for the mitigation of noise and shadow flicker impact<sup>15</sup>. In unavoidable cases where 500 m distance cannot be maintained, the minimum setback distance the distance of Tower height +  $\frac{1}{2} D + 5m$  has to be maintained<sup>16</sup>.

S. No.	Criteria	Yes	No	Remarks
1.	Is the WTG location situated close to any eco sensitive zone?			
2.	Is the location within any forest area, wildlife sanctuary, bird sanctuary, national park?			
3.	Is the location situated near forest area, wildlife sanctuary, bird sanctuary, within 500 m?			
4.	Coastal Areas - Is the Site falling within High Tide line (HTL) as per CRZ notification (< 500m)?			
5.	Is there any road near the WTG location within a distance as per Distance= $HH + \frac{1}{2} RD + 5m$ , as mentioned in subpoint 4 of section 5 of MNRE Guidelines for Development of Onshore Wind Farms guideline?			
6.	Is there any big water body situated within 500 m from the WTG location?			
7.	Is there any residential house/hut situated lesser than the setback distance of 500m as per subpoint 5 of section V of MNRE Guidelines for Development of Onshore Wind Farms ?			
8.	Is there any airport/aviation radar/defence installation within 10 kms from WTG location?			
9.	Is there any high-tension line (EHV) situated near WTG location within a distance as per $HH + \frac{1}{2} RD + 5m$ , as mentioned in subpoint 4 of section 5 of MNRE Guidelines for Development of Onshore Wind Farms guideline?			

<sup>9</sup> IFC EHS Guidelines for Wind Energy Sector

<sup>10</sup> DGCA Guidelines & Ministry of Civil Aviation

<sup>11</sup> DGCA Guidelines & Ministry of Civil Aviation

<sup>12</sup> Central or State government institutes

<sup>13</sup> MNRE Guidelines for Development of Onshore Wind Farms

<sup>14</sup> Any permanent or temporary residential structure

<sup>15</sup> MNRE Guidelines for Development of Onshore Wind Farms

<sup>16</sup> State Specific or central guidelines for Wind Farm



S. No.	Criteria	Yes	No	Remarks
10.	Is there any structure, monument of archaeological importance as per archaeological survey of India near WTG location, if yes at what distance?			
11.	Is the location considered sacred by any community/Is there any shrine or artefact of importance to the local community within 300 m of the WTG?			
12.	What is the nature of land for WTG location, private, revenue, assigned?			

### 3 APPENDIX C: Terms for Reference (TOR) for E&S Studies

The following subsections provide a sample Terms of Reference (TOR) for Environment and Social Impact Assessment (ESIA), as well a sample reporting structure that will be utilized by HFE by procuring services from third party consultants to carry out an assessment. It must be noted that, the third-party consultants will need to adhere to the scope of work and reporting format; however, they will need to use and refer to their internal tools for conducting the study and associated gap assessments.

#### 3.1 Environment and Social Impact Assessment (ESIA)

##### 3.1.1 Objective

The objective of the ESIA study will be to:

- To establish the environmental & social baseline in the study area and to identify any significant environmental & social issues.
- To analyse, quantify the impacts, and design project activities keeping in mind environmental and social impacts.
- To prepare an inventory of biodiversity (flora and fauna) affected due to project activity (if any).
- To mitigate adverse impacts by the provision of the requisite avoidance and compensation measures of proposed project activities.
- To develop Environmental and Social Management Plan (ESMP) for implementation and monitoring of the mitigation measures along with suitable green belt development plan with proposed budget; and
- To integrate the environmental and social issues in the project planning and design stage with proper Corrective Action Plan (CAP) for mitigation measures.

##### 3.1.2 Scope of work

Provided below scope of work to undertake ESIA is as per the IFC PS, 2012, requirement:

- **Project Description:** Provide a detailed description of the project, including its location, size, and scope
- **Legal and Regulatory Framework:** (i) identify and review relevant national and local environmental and social regulations; and (ii) Determine the requirements for public consultation and participation as per the applicable laws
- **Stakeholder Engagement:** (i) Develop a Stakeholder Engagement Plan (SEP) detailing how stakeholders will be identified, consulted, and involved throughout the assessment process; and (ii) Conduct initial stakeholder mapping to identify key community groups, NGOs, local authorities, and other relevant stakeholders.
- **Baseline Data Collection:** (i) Conduct a comprehensive baseline study to collect data on the physical, biological, and social conditions of the project area; and (ii) Identify and assess potential environmental and social impacts associated with the project
- **Impact Identification and Assessment:** (i) Identify and assess the potential positive and negative environmental and social impacts of the Projects; and (ii) Assess cumulative impacts, indirect impacts, and potential impacts due to climate change.
- **Climate Change Risk Assessment** - Identification of the potential impacts for the Project from the physical risks including extreme weather events, change in water availability, etc. .Identification of transitional risks along with physical risks and suggest mitigation measures.
- **Undertake noise & shadow flicker analysis:** Undertake noise and shadow flicker analysis for the WTGs.
- **Human Rights Risk Assessment** - Understand the external and operational threats to human rights to assess human rights risks & impacts suggest management measures.
- **Biodiversity impact Assessment:** Surveying existing biodiversity in the project area, including flora and fauna. Identifying key species and habitats that may be affected and proposing strategies to

minimize negative impacts, such as habitat restoration, conservation programs, and sustainable practices

- **Alternative Assessment:** (i) Evaluate feasible alternatives to the proposed project and assess their environmental and social implications; and (ii) Provide a detailed analysis of the “no-project” alternative.
- **Mitigation Measures:** (i) Develop a set of specific and feasible mitigation measures to address identified impacts; and (ii) Prioritize mitigation measures based on their effectiveness and feasibility.
- **Environmental and Social Management Plan (ESMP):** (i) Develop an ESMP outlining the management and monitoring measures to be implemented during all phases of the Project; and (ii) Ensure that the ESMP aligns with the IFC Performance Standards and local regulatory requirements.
- **Undertake noise & shadow flicker analysis:** Undertake noise and shadow flicker analysis for the WTGs.
- **Human Rights Risk Assessment** - Understand the external and operational threats to human rights to assess human rights risks & impacts suggest management measures
- **Reporting:** Develop ESIA report to enable the Project to meet the requirements of the applicable standards. The report will categorize the Project as per applicable reference framework.

### **Additional scope of work for Green Hydrogen Projects**

In addition to the above section 3.1.2, following aspects shall also be considered for ESIA Green Hydrogen Projects:

#### **Air Quality:**

- **Air modelling:** Specialized studies shall include air quality modelling to assess impact from point & non-point sources including fugitive emissions, bulk storage tank emissions, NH<sub>3</sub> storage & handling etc.
- **Emission Reduction:** While green hydrogen production itself emits no greenhouse gases, assess any potential indirect emissions from construction, transportation, or auxiliary energy sources.
- **Air Quality Benefits:** Analyze the broader impact of green hydrogen adoption in reducing pollutants (e.g., NO<sub>x</sub>, CO<sub>2</sub>) in industries that switch to hydrogen-based processes (e.g., transportation, manufacturing).

#### **Noise and Vibration:**

- Evaluate noise impacts from equipment such as electrolysis units, compressors, and renewable energy generators, particularly during construction and in densely populated areas.
- Conduct noise modelling, Qualitative Risk Assessment & Modelling.

#### **Health and Safety:**

- **Hydrogen Storage and Transport Risks:** Assess risks associated with storing and transporting hydrogen, which is highly flammable. This includes assessing risks to both workers and surrounding communities and ensuring proper safety protocols are in place.
- **Community Safety:** Evaluate the potential for accidents, leaks, or explosions and the impact on nearby communities. Consider the need for emergency response plans and community awareness programs.

### **Additional scope of work for E-Methanol Projects**

In addition to the above section 3.1.2, following aspects shall also be considered for ESIA E-Methanol Projects:

#### **Air Quality:**

- **Emission Assessment:** Evaluate emissions from e-methanol production, including CO<sub>2</sub> sources, potential leaks and by-products.
- **Air Pollutants:** Assess nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), volatile organic compounds (VOCs) and particulate matter (PM).
- **Dispersion modelling:** Predict how emissions spread in the atmosphere and their impact on ambient air quality.

**Noise and Vibration:**

- Evaluate noise impacts from equipment such as like compressors, turbines, cooling systems and transport vehicles.
- Assess potential disturbance to residents, workers and wildlife.

**Health and Safety:**

- **Occupational Hazards:** Identify risks such as chemical exposure, high -pressure systems, fire hazards, and confined spaces entry.
- **Process Safety:** Conduct Hazard Operability Study (HAZOP) and risk assessments for e-methanol production.
- **Community Safety:** Assess potential exposure risks from air pollution, accidents and transportation of raw materials.

**Scope of work for Battery Storage Projects**

In addition to the above, following aspects shall also be considered for ESIA Battery Storage System:

**Environmental Impacts**

- **Air Quality:** Assess emissions during construction and from energy use in operations. Evaluate risks of air pollution due to potential fires or hazardous material release (especially in lithium-ion batteries).
- **Energy Efficiency and Carbon Footprint:** Assess the overall energy efficiency of the battery storage system and its potential to reduce or increase greenhouse gas (GHG) emissions by facilitating renewable energy integration versus its own operational energy use.
- **Hazardous Materials:** Evaluate the handling, storage, and disposal of hazardous materials (e.g., lithium, cobalt) used in batteries. Assess the risk of contamination due to leaks or improper disposal, and the potential for recycling.
- **Waste Management:** Review waste generation, especially hazardous waste from spent batteries, and ensure adequate systems for recycling and disposal. Examine end-of-life disposal methods to minimize environmental damage.

**Social Impacts**

- **Community Health and Safety:** Evaluate the potential risks to local communities, including fire hazards, exposure to toxic materials, noise, and other operational risks (e.g., battery explosions). Address emergency response measures for accidents.
- **Impact on Indigenous Communities:** Consider any adverse effects on indigenous communities and whether cultural or land rights are affected by the project’s location.
- **Noise and Vibration:** Assess noise levels during construction and operation, particularly if the system includes large infrastructure or involves high-energy discharges.

**Deliverable**

The ESIA study will specifically cover the following:

Title	Description
Executive Summary	This section of the report will describe concisely the critical facts, significant findings, and recommended actions of the ESIA.

Title	Description
Defining the Project/Project Description	A complete description of project and major components; geographic, ecological, social, and temporal context; including any associated facility required by and for the project (e.g., access road, power projects, labour camps as applicable, water supply, stockyard, waste storage areas); project's area of influence; maps indicating any protected areas in proximity (at least 10 km buffer from such areas); land requirements; consultation processes followed including an assessment of the adequacy of information disclosed to the landowners and the bargaining power of landowners to negotiate for fair compensation; mechanisms adopted for calculating the replacement costs of land and other assets impacted; resource requirements; project implementation schedule; project cost.
Laying down Policy, legal, and administrative framework	Discussing the policy, legal, and administrative framework within which the assessment is carried out, including host country regulations (including permits and licenses), obligations under relevant international social and environmental treaties, agreements, and conventions and IFC PS. Reviewing the Social & Environmental compliance requirement with respect to the above.
Generating Baseline Data	Describe relevant physical, biological, and socioeconomic conditions within the study area; current and proposed development activities within the project's area of influence; water quality, availability and adequacy; current land use; results of ecology and biodiversity survey; physical or cultural heritage; flooding and seismic risks; socio-economic information and profile outlining data from census and socio-economic surveys, with information on vulnerability (including scheduled castes), gender, indigenous peoples (ethnic minorities, scheduled tribes), and labour
Information Disclosure, Consultation and Participation	Describe the consultation and participation mechanisms adopted, including the activities undertaken to disseminate project and resettlement information during project design and engaging stakeholders. The results of consultations with affected persons, the host communities, civil society organizations and other stakeholders, and HFE response to address the concerns raised will be summarized.
Review of land acquisition	The Consultant, based on documentation provided by HFE, shall ensure the land has proper title / title deeds, concerning the purchased / leased land as per the Title Search Report prepared by the law firm. The Consultant shall also ensure that the purchased / leased land is in compliance to state / national laws and government provisions and is free of encumbrance. Consultant shall ensure that the purchase / leasing process is not adversely affecting any dependents on the land such as agricultural labourers, pastoralists or squatter or encroachers. Consultant should identify and suggest measures to avoid or minimize any negative and adverse impact on the purchased / leased land and the local community due to its operations, to the extent practicable and shall mitigate and compensate the impacts that cannot be minimized. Consultant shall assure that the purchased / leased land has not resulted in the economic displacement of people. HFE shall facilitate adequate documentation and disclosure of the land purchase / lease process to the relevant stakeholders.
Assessing Social and Environmental Impacts and Mitigation Measures	Assessing the Social and Environmental impacts (both positive and negative) of the projects. Identify mitigation measures and any residual negative impacts that cannot be mitigated. Also, evaluate impacts and risks from associated facilities and other third-party activities. Description of the entitlements for various categories of impacts, mitigation measures to address livelihood risks etc. will be included in this section. Also includes assessment and mitigation measures for health and safety issues of the workforce and community, as well as Company's compliance with national labour laws and the international labour standards.
Grievance Redress Mechanism	Description of the grievance redress framework/mechanism (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental and social performance.

Title	Description
Analysis of the Alternatives	Comparing reasonable alternatives to the proposed project site, technology, design, and operation in terms of their potential social environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. It would also state the basis for selecting the particular site and project design justifying recommended approaches to pollution prevention and abatement.
Management Program	Developing an Environmental and Social management and monitoring plan (ESMMP). This should consist of the set of mitigation and management measures to be taken during implementation of the project to avoid, reduce, mitigate, or compensate for adverse social and environmental impacts, in the order of priority, and their timelines. Where the client identifies measures and actions necessary for the project to comply with applicable laws and regulations and to meet the IFC requirements, the management program will include an Action Plan, which is subject to disclosure to the affected communities and ongoing reporting and updating. An itemized budget and responsible parties for all environmental management, monitoring, resettlement activities, including implementation of the ESMMP shall be presented. The institutional arrangements and schedules for the implementation of the ESMMP and its monitoring shall be detailed.
At last, conclusion and Recommendation	Providing conclusions drawn from the assessment and providing recommendations

### 3.2 Environment & Social Due Diligence (ESDD)

The following subsections provide a sample Terms of Reference (TOR) for Environment & Social Due Diligence (ESDD). It must be noted that, the third-party consultants will need to adhere to the scope of work and reporting format; however, they will need to use and refer to their internal tools for conducting the study and associated gap assessments.

#### 3.2.1 Objective

The ESDD is conducted to identify potential environmental and social risks and impacts, compliance gaps, necessary mitigation, and follow-up actions, and outlining a managing / monitoring regime.

This review must specifically address anticipated risks and mitigation measures and should give an overall opinion on the ability of the Project to meet the National & International E&S Safeguards.

#### 3.2.2 Scope of Work

The scope of work would entail verification of all relevant environmental and social aspects of the project within the reference framework (including the current operations and the future planned additions/ expansions). This will include, but not be limited to, the following aspects:

- Assess project-related environmental and social impacts and risks;
- Desk-based review of documentation for the Project EHS, regulatory and social compliance issues and potential natural hazards;
- A climate risk and human rights risk assessment;
- Evaluate the existing Environmental and Social Impact Assessment (“ESIA”), Environmental and Social Management Plan (“ESMP”), Environmental Social and Governance Management Framework (ESG) Management Framework (MF), Resettlement Action Plan (“RAP”), if applicable, Stakeholder

Engagement documentation, grievance mechanism and other relevant Project documentation against the Applicable Standards.

- Review and assess the adequacy of ESMP prepared for the Project and any other relevant Project documents.
- Review adequacy of stakeholder engagement activities, both ongoing and proposed.
- Evaluate if the ESIA study has demonstrated compliance with applicable Performance Standards and fully addressed biodiversity issues including project impacts on existing ambient conditions where project is close to areas of importance to biodiversity, protection and conservation of biodiversity, maintaining the benefits from ecosystem services, promotion of the sustainable management of living natural resources through the adoption of sustainable practices, and the land use issues resulting from the creation of project-related buffer zones or biodiversity offsets.
- Assessment of Project's capacity and resources to successfully manage the environmental and social risks and impacts, and to address the identified gaps in accordance with the applicable standards and to comment if additional capacity and resources are required.
- Identify gaps against the applicable standards and provide recommendations to address the gaps. Also identify whether the gaps represent a significant issue and can (or cannot) be closed to achieve compliance.
- Identify requirements for any further investigations and supplementary documentation that will need to be prepared as well as additional procedures and activities that will need to be undertaken. Confirm if there are any gaps regarding land acquisition documentation, biodiversity assessment or if a Resettlement Framework, Resettlement Action Plan or Livelihood Restoration Framework is required.
- Provide a digitalization of the project location to analyses potential biodiversity impacts on forest reserves, if applicable.
- Evaluate the key environmental and social permits obtained to complete and operate the Project, and any that are outstanding, and steps taken to obtain these.
- Recommendations on the categorization of the Project according to the IFC guidelines.
- Identify from media sources if there are any concerns regarding potential environmental and social issues in relation to the Project or the Sponsors, including negative Non-Governmental Organization attention, that may lead to reputational risk to the Project (or associated parties).
- Conduct a site visit to the Project and associated facilities and undertake stakeholder consultations.
- Develop E&S review report with details of all the Project and associated facilities, summarise the outcome of the information review and site assessment observations and to provide a comprehensive Environmental and Social Action Plan (ESAP) to enable the Project to meet the requirements of the applicable standards with the timelines for completion of the action items.

Specifically, this work will entail:

- Verifying to what extent such aspects of the project are in accordance with HFE's ESG MF and applicable International E&S frameworks
- Providing a Categorization of the project assessed along with the justification for the same, based on E&S risks identified
- Developing an Action Plan, with timelines and responsibilities, to address any gaps or issues that need to be managed through the life of the project

The ESDD review will comprise the following steps:

Title	Description
Information Review	This should include a review of all relevant social, labour, health and safety and environmental related documents and information (i.e., environmental permits / licenses and associated applications, health and safety plan, land acquisition and R & R if relevant, emergency plan, consultation plans and documentation of consultations done till date, concession and construction contracts, any other additional environmental, health and safety studies, etc., and, subsequent to the site reconnaissance, review of any additional information obtained or collected).
Site Reconnaissance	A site investigation of the plant will be performed consisting of visual observation of relevant areas directly and indirectly affected by the project / company, meetings with relevant individuals / entities associated with the project / company to discuss the social, environmental issues, health and safety and labour issues, and obtaining any additional information required
Discussions	These will be held with the Top Management to understand policies and documentation
Report Preparation	Two documents will be required associated with the due diligence: <ol style="list-style-type: none"> <li>1. Preliminary Summary of Principal Findings, and</li> <li>2. Detailed Due Diligence Report.</li> </ol>

The report will include a clear compliance overview table providing for each IFC Performance Standard, Equator Principle 4 (if required), Asian Development Bank (ADB) guidelines (if required), and for each applicable EHS Guideline the requirements, at least the following information per key requirement:

- Description of the requirement
- Compliance status, differentiating between minor and major gaps to completion
- Description of the observed situation / compliance gap
- Comments on opportunities for positive impacts, and
- Recommended follow-up.

### 3.2.3 Deliverables

- A draft of the full report is to be made available within 2 weeks after conclusion of the site visit
- The final Report shall be submitted within 1-2 weeks after receiving comments on the draft report.
- All reports should be written and prepared in English and delivered in electronic and hard copy.”

**Note:** The timeframe of the ESDD can vary depending upon the complexity of the project. Typically, the process will entail the following timeline:

- The site-visits are to be concluded within 1-2 week after the preparatory information/ documentation has been made available to the consultant. (Typically, would mean 2-3 days site visit).

### 3.3 Additional Assessment and Studies

This section summarizes the key expectations with respect to additional thematic/specialist assessment for project sites, in case the following or specific aspects are triggered as part of Screening, ESIA or ESDD.

Type of E&S Study	Specific Trigger	Typical Scope and Recommendations
Biodiversity Assessment	A Biodiversity Assessment is typically triggered during the	-



Type of E&S Study	Specific Trigger	Typical Scope and Recommendations
	<p>project siting stage. This is because it's crucial to understand the existing flora and fauna at the potential location and how the project might impact them.</p>	
Climate Risk Assessment (CRA)	<p>Any project that may result in climate change impacts during their lifecycle like extreme weather, rising sea levels, and water availability. It helps with siting decisions, project design, attracting investment, and meeting regulations.</p>	-
Resettlement Planning Framework (RPF)	<p>Any project that may result in involuntary resettlement (physical and economic)</p>	<p>RPF is applicable when a project's activities and specific footprint may not have been defined and describes the entitlements and that are proportional to the extent and degree of the impacts. The degree of impacts is determined by: (a) the scope of physical and economic displacement; and (b) the vulnerability of the affected people</p>
Indigenous Peoples Planning Framework	<p>Any project that may affect indigenous peoples based on the specific criteria to self-identify a group through collective attachment, distinct language, integration with the mainstream etc.</p>	<p>If the Project would have impacts on Indigenous Peoples, HFE will prepare an Indigenous Peoples plan or IPPF. The level of detail and comprehensiveness is proportional to the degree of the impacts. The degree of impacts is determined by evaluating: (a) the magnitude of the impact on Indigenous Peoples' customary rights of use and access to land and natural resources; socioeconomic status; cultural and communal integrity and heritage; health, education, livelihood systems and social security status; and indigenous knowledge; and (b) the vulnerability of the affected Indigenous Peoples. The Indigenous Peoples plan complements the broader coverage of social risks and impacts in the environmental and social assessment and provides specialized guidance to address specific issues associated with the needs of affected Indigenous Peoples</p>
Resettlement Action Plan (RAP) or Livelihood Restoration Plan (LRP)	<p>Category A and limited Category B projects that entail negotiated settlements and/or government-led land acquisition where impacts from involuntary resettlement are unmitigated.</p>	<p>The RAP and/or LRP will require the project proponent to assess land-based and/or natural-resource based resettlement and livelihood impacts which are current, and which pose potential residual risks and/or implications for legacy issues. The RAP and LRP may entail the development of an entitlement matrix to compensation land and projects and/or restore livelihoods over and above the process that may already have been adopted.</p>



## 4 APPENDIX D: Risk Identification

Hazard Identification and Risk Assessment (HIRA) serves as a tool for evaluating the potential risks posed by various hazards, considering both their likelihood of occurrence and potential impact. It is important to note that HIRA is not designed to predict specific emergencies; rather, its purpose is to identify and assess hazards based on their probability and potential consequences. In the context of operations, HIRA should be conducted alongside an evaluation of potential environmental damage, utilizing aspect-impact matrices developed at the facility level. This comprehensive approach encompasses the assessment of activities, products, and processes to enhance overall risk management.

### 4.1 Purpose of the framework

This procedure establishes the criteria for identifying, assessing, and controlling hazards to efficiently manage Environmental Social and Governance (ESG) Management Framework (MF) mental and Social Management System (ES) risks within HFE workplaces. It applies to all activities conducted by HFE employees, workers, contractors, and subcontractors throughout the entire lifecycle of the project.

### 4.2 Definitions

Term	Definition
<b>Hazard</b>	It is a situation that has a potential to harm a person, the environment or damage property.
<b>Risk</b>	The likelihood or probability that a hazardous event (with a given outcome or consequence) will occur.
<b>Risk Assessment</b>	It is defined as the process of assessing the risk associated with each of the hazards identified so that appropriate measures can be implemented based on the probability.
<b>Routine Activities</b>	Activity which is performed regularly. All maintenance activities fall under routine activities.
<b>Non-Routine Activities</b>	Activities which are performed not as routine activities- construction work involving activities such as such as piling, shuttering, de-shuttering, using equipment that are not the part of process etc.
<b>Contractor</b>	Include any service providers who are not direct employees of HFE and are providing services in relation to maintenance and repair work. This includes contractor employees, subcontractors, and subcontractor employees. Services can be of long or short nature.

### 4.3 Roles & Responsibilities

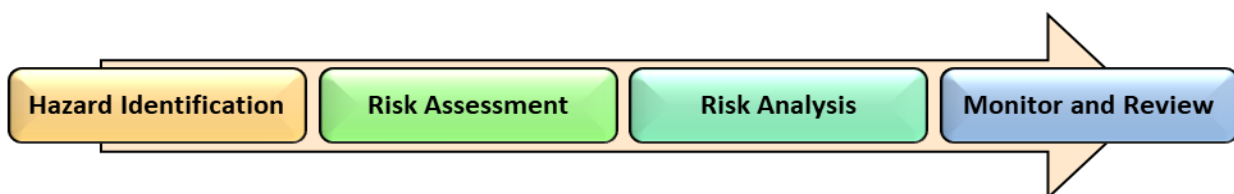
The EHS Officer (facility level) and Safety Officer of HFE are responsible for the implementation of this Plan. Roles and responsibilities of team members are as follows:

Sl. No	Designations/Members	Roles/Responsibilities
1.	Site Safety/EHS Officer (Project Specific)	<ul style="list-style-type: none"> <li>Develop a cross functional team to perform Hazard Identification and Risk Assessment (HIRA)</li> <li>Review and approve the Job Safety Assessment Form</li> <li>Maintain Training Records, Incident reports and Risk Assessments records</li> <li>Review and prepare emergency and rescue procedures</li> <li>Notify the nearest fire station, ambulance, police in case of any accident</li> <li>Undertake review of permits as issued by contractor</li> <li>Lead in Safety performance review meeting undertaken by management.</li> <li>Training all employees (HFE and Contractors) on safe work practices and safe use of facilities and equipment</li> <li>Implementation of necessary risk control measures</li> </ul>

Sl. No	Designations/Members	Roles/Responsibilities
		<ul style="list-style-type: none"> <li>Conducting six monthly workplace inspections to identify any new risk.</li> </ul>
2.	Cross Functional Core Team	<ul style="list-style-type: none"> <li>Completion of Risk Assessment Form</li> <li>Conducting six monthly workplace inspections to identify any new risk</li> <li>Conducting regular monitoring and evaluation.</li> </ul>
3.	Contractor Representative	<ul style="list-style-type: none"> <li>Identifying all the task which may pose Environmental, Health and Safety risk</li> <li>Training all employees on safe work practices and safe use of facilities and equipment</li> <li>Implementation of necessary risk control measures in consultation with the Site Safety/EHS Officer (Project Specific).</li> </ul>
4.	Employees	<ul style="list-style-type: none"> <li>All employees are required to perform their work in a safe manner</li> <li>Report workplace hazards immediately to the safety manager.</li> </ul>

#### 4.4 Procedures

A HIRA is a risk assessment tool which is used to assess which hazard pose the greatest risk in terms of how likely they are to occur and their potential impact. HFE shall be responsible for overlooking the occupational health, safety and welfare of all the workers while they are at work in the Project Sites. Contractors will be responsible for implementing and assessment of the identified Hazards and their risk controls. The main steps of Hazard Identification and Risk Assessment (HIRA) are described below:



##### Stage 1 Identification of Hazards

This step includes identification of potential hazards that may arise from different activities of the company and can impact its operations.

- Layout Plan/Onsite Contractor Activities/Process Flow Charts/Inventory on hazardous materials, wastes, products, legal register and information on best industry practices shall be used to identify activity with Environmental, Health, Safety, Social and Legal risks.
- Responsibility will be assigned for identifying all the activities (This will include both routine and non-routine activities and activities of all persons having access to the workplace including contractors and visitors).
- Hazard Identification shall be done by dedicated Site-Specific Safety/EHS Officer by breaking it down into more steps/process activities to evaluate the nature of the hazard.
- Once identified, the activities with their associated Occupational, Environmental, Health Safety & Social impacts are to be recorded.

##### Stage 2 Risk Assessment

In this step, the risk level of the identified hazards is deduced. The likelihood of the hazard occurring and the potential impacts of the hazard on people, property, the environment, business and finance should be evaluated and determined to be tolerable or not. It includes further analysis of the hazard by breaking it down into more steps/process activities to evaluate the nature of the hazard.

The type of hazards associated with various activities includes the following:

- Construction activities including but not limited to cutting, welding etc.
- Physical hazards covering machinery, dust, thermal, electrical, fire & explosion
- Chemical hazards covering general chemicals
- Ergonomic hazards
- Other hazards such as Occupational, Confined Spaces.
- Risk within each job task shall be evaluated by determining its:
  - Probability or likelihood
  - Exposure Level of employee
  - Consequence of the exposure.

The base risk is calculated as per the following formula:

**Risk Score = Severity \* Exposure Frequency**

Once assessed, the risk shall be rated and recorded in the Risk Assessment format using severity rating matrix and the risk matrix given below. The risk will be categorized as low, medium and high as per the rating score:

Aspects		Severity			
<b>Safety &amp; Health of public and employee</b>	First aid only, not affecting work performance	Minor injury requiring medical treatment, not affecting work performance, or restricting work activities.	Moderate injury requiring medical treatment, temporary affecting work performance or restricting work activities or moderate, reversible health effect (Occupational illness).	Major bodily injury or health effects. Affecting work performance in the longer term, irreversible health damage, potential permanent disability	Fatality or multiple life-threatening injuries.
	<b>Environmental</b>	Limited effect to minimal area of low significance.	Minor, reversible effects on biological or physical environment. Minor damage to small area of limited significance. No report to authorities.	Moderate effects on biological or physical environment (air, water) but not affecting ecosystem function. Moderate short-medium term widespread impacts (e.g., significant spills). Report to authorities.	Major environmental effects with some impairment of ecosystem function. Relatively widespread medium-long term impacts. Company required to take extensive measures to restore environment.
<b>Legal &amp; Company Compliance</b>	Minor non-conformity to Legal requirement which will not result in any notice of violation or fine.	Nonconformity result in receiving notice of violation.	Nonconformity with fine less than INR 500,000.	Major non-compliance with fine more than INR 500,000.	Serious non-compliance with legal requirements. Court case, jail term or fine more than INR 2500,000.
<b>Severity</b>	1	2	3	4	5
	Insignificant	Minor	Moderate	Serious	Severe

**Risk Matrix:**

		Likelihood				
		1	2	3	4	5
Impact	1	Low	Low	Low	Medium	Medium
	2	Low	Low	Medium	High	High
	3	Medium	Medium	High	High	Extreme
	4	Medium	High	Extreme	Extreme	Extreme
	5	High	Extreme	Extreme	Extreme	Extreme

- Impact Risk Scale
  - 1 = Insignificant
  - 2 =Minor
  - 3= Moderate
  - 4= Serious
  - 5= Severe
- Likelihood Scale
  - 1 = Rare (<2%)
  - 2 =Unlikely (2 - <5%)
  - 3= Possible (5 - <10%)
  - 4= Probable (10 - <25%)
  - 5= Most Probable (25 - <50%)

Risk Priority	Description
Low	Is still important but can be dealt with through scheduled maintenance or similar type programming. However, if solution is quick and easy then fix it today. Review and/or manage by routine procedures.
Medium	Is very important, must be fixed within a week to next 30 days, considering short term and/or long-term actions.
High	Situation is critical, stops work immediately or considers cessation of work process. Must be fixed today, consider short term and/or long-term actions such as incident investigation and regular internal review.
Extreme	Situation is critical, stops work immediately and require immediate action.

**Stage 4 Elimination or Reduction of Risks**

This involves identifying opportunities to reduce the likelihood and/or consequence of an incident/accident where deemed to be necessary. Risk Assessment combines the consequences and likelihood of all incident outcomes from all selected incidents to provide a measure of risk. The risk of all selected incidents are individually estimated and summed to give an overall measure of risk. Risk-reduction measures include those to prevent incidents (i.e. reduce the likelihood of occurrence) to control incidents (i.e. limit the extent and duration of a hazardous event) and to mitigate the effects (i.e. reduce the consequences). Preventive measures, such as using inherently safer designs and ensuring asset integrity, should be used wherever practicable. In many cases, the measures to control and mitigate hazards and risks are simple and obvious and involve modifications to conform to standard practice.

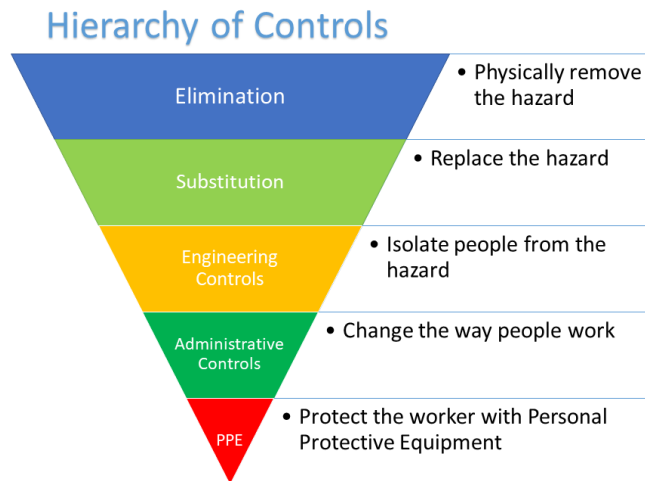
The information collected in the risk assessment step will be analyzed and control measures are planned. Control measures basically include:

- elimination or substitution control,
- engineering controls,
- administrative controls,
- provision of appropriate personal protective equipment (PPE), trainings etc.

This will highlight the hazards that would be considered as a current priority for the H&S activities to be undertaken by the company. The early discovery of risk analysis in business cycle promotes more cost effective

and safe operations in future. An incorrect perception of risk at any point can lead to either inefficient use of limited resources or unknowing acceptance of risks exceeding the true tolerance of the Company or the community. When determining controls for the identified risk, HFE shall consider reducing the risk in the order of following hierarchy of controls.

**Figure4-1 Hierarchy of Controls**



- **Eliminate the Hazard:** Removing the hazard, mainly any equipment, Falling objects, Excavation areas to name a few.
- **Substitute the Hazard:** Replacing the hazardous substance with less hazardous one.
- **Use Engineering Solutions:** It mainly involves redesigning the process or equipment to make it less hazardous or machine guarding.
- **Signage/Warnings or Administrative Controls:** Adopting Safe Operating Procedures (SOP) or providing appropriate training/instruction/information.
- **Training & use of PPE:** Provision and Use of Personal Protection Equipment and training on its use.

### Stage 5 Monitoring and Review

Monitoring shall be done to regularly review the effectiveness of the hazard assessment undertaken and control measures taken. Review shall be undertaken under following cases:

- Any change in infrastructure, equipment, materials, process, installations, machinery, operating procedures.
- Changes in the employee which are likely to affect the operations of the department.
- The process of regular monitoring and review is also important in order to identify any new risks and implement appropriate new control measures. The risk assessment shall be reviewed and approved by HFE's ESG Head.

As HIRA is an ongoing process, hazards and their associated risks shall be monitored and review periodically by responsible personnel. HIRA study at HFE shall be performed by a team of experts focusing on the process, materials, and the work activities. Safety Officer shall be responsible for ensuring periodically conducting HIRA for all projects. The procedure for conducting HIRA shall include:

- Regular walk-through of the worksite and visually assess any potential hazards that could be harmful to the workers.

- Consult with the employees/workers and managers/supervisors for any expressing concerns w.r.t work practices. Involving workers in the process of identifying hazards which will also increases staff morale and compliance with safety practices.
- Assess accident/incident reports on previous incidents (if any).
- Review the project specific EHS monitoring checklist and reports.

#### 4.5 Review

ESG MF Manager (with support of Safety Officers) is responsible for reviewing this Plan. It shall be reviewed annually or before, if there are any amendments in the legal or regulatory requirements.

##### Amendments in Plan

The latest versions of the Documentation Format must be used at all times. This page needs to be updated whenever there is a change in the version number of the documents.

S. No.	Date	Document Version	Details of amendments

#### 4.6 Reporting Formats

- Form1: Risk Assessment Form (To be used Prior to construction and operation phase) (Refer Table 1)
- Form 2: Activity Specific aspect impact interaction for construction and operation phase (Refer Table 2)

Form 3: Job Safety Assessment Form (Refer Table 3)

**Table 4-1: Form-1- Risk Assessment Form**

<b>Plant Location</b>		<b>Location: (Site)</b>	
<b>Assessment Date:</b>		<b>Review Date:</b>	
<b>Assessors Name/Sign/Date</b>		<b>Job Title:</b>	
<b>Task:</b> Risk assessment for the activities associated with _____ Area/ Machine/ Job/ Task			



What are the hazards?	Who might be harmed?	What are the risks	Are the following control measures in place to eliminate or reduce the risks?	Yes/No	Corrective actions required	Risk Evaluation	Risk Rating
(See list of sample hazards)						Consequence (1 – 3)	Likelihood (1 – 3) Overall risk (C x L) Low, Medium, or High

**Table 4-2: Form 2: Activity Specific aspect impact interaction for construction and operation phase**

Activity	Aspects	Potential Impacts	Likelihood	Severity	Significance Rating	Minimum Control Measures	Related SOP/ Reference	Review of control measures	Revised Rating
								<i>Column to be filled by EHS Manager as part of ESG MF implementation and review</i>	<i>Column to be filled by EHS Manager as part of RSG MF implementation and review</i>

## 5 APPENDIX E: Pollution Prevention and Management Plan

The construction and operation phases of a project inherently pose a risk of generating various types of pollution, necessitating careful planning to prevent adverse impacts on human health, ecosystems, and the environment. This includes unintentional releases into the air, water, and soil, among other potential sources. HFE is committed to proactively managing these potential pollution sources. To achieve this, the company will implement a comprehensive management program. This framework applies to all HFE operations, encompassing staff, contractors, and subcontractors.

This plan will be implemented by the contractors during both the construction and operation phases, and HFE will oversee their effective implementation throughout the processes.

### 5.1 Purpose of the framework

The Pollution Prevention and Management Plan is designed to create a systematic framework for the company, with the goal of minimizing adverse environmental impacts and outlining precise measures to improve environmental conditions. Its development aims to guide HFE in the efficient use of resources like water and energy, integrating strategies for pollution prevention and control, and complying with pertinent regulatory standards and industry best practices in waste management. The plan underscores the commitment to sustainable development and continuous improvements in environmental management throughout all company facilities. It details measures to be applied during both construction and operational phases, aligning with the overarching objectives of the plan. This plan -

- Outlines actions and measures necessary for the effective prevention of pollution.
- Covers both accidental and intended emissions to air, noise, water, and soil.
- Specific control measures to be implemented by HFE and its contractors (and subcontractors).

### 5.2 Objective

The aim of this plan is to prevent land, air, or water pollution, ensuring adherence to current environmental legislation. It sets a standard for best practices, emphasizing the implementation of all possible preventive measures to avoid pollution of land, water, air, and other environmental aspects during both the construction and operational phases of solar and wind power projects.

### 5.3 Applicable Environmental Standards

#### *National Legislations*

- National Ambient Air Quality Standards (NAAQ Standards), as prescribed by MoEFCC vide, Gazette Notification dated 16<sup>th</sup> November 2009,
- Drinking water quality- Indian Drinking Water Standard (IS 10500: 2012),
- General standards for discharge as prescribed under the Environment Protection Rules, 1986 and amendments (G.S.R 422 (E) dated 19.05.1993 and G.S.R 801 (E) dated 31.12.1993 issued under the provisions of E (P) Act 1986),
- Noise standards specified by the MoEFCC vide gazette notification dated 14<sup>th</sup> February 2000 (Noise Pollution (Regulation and control) Rules, 2000),
- The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 6<sup>th</sup> amendment July 2022,
- Solid Waste Management Rules (SWM), 2016, as amended in 2020,
- Plastic Waste Management (Amendment) Rules, 2022,
- Battery management and handling rules 2022,
- E-Waste (Management) Rules, 2022,
- Construction and Demolition Waste Management Rules, 2016,
- Ozone Depleting Substances (regulation and Control) Rules, MoEFCC 2000.
- Biomedical Waste Management Rules 2016

### International Legislations and Frameworks

The General EHS guidelines (30<sup>th</sup> April 2007) of IFC/ WB have outlined following environmental standards which needs to be complied for the project.

- IFC/ WB Environmental, Health and Safety Guidelines for Air Emissions and Ambient Air Quality Standards.
- The World Bank Group General EHS Guidelines, 2007
- The World Bank Group EHS Guidelines for Wind Energy Projects 2015
- World Bank Group EHS Guidelines for Electric Transmission and Distribution

## 5.4 Management Plan

This Plan is corporate level guidance document on pollution prevention and management applicable for all project operations of HFE. All employees (including contractual workers) shall comply with the procedures outlined in this plan to ensure adherence to the company’s commitment towards pollution prevention to the extent possible. There are several potential sources of pollution from solar and wind power projects which may adversely impact upon the nearby sensitive receptors.

### 5.4.1 Air Emission Management Procedures

The Air emission mitigation/management measures procedures to be adopted by the company to reduce the identified adverse impacts are summarized in **Table 5-1** below:

**Table 5-1: Air Emission Management Procedure**

Environmental Parameters	Activities	Mitigation/Management Measures
<b>Air Emissions</b>		
<b>Construction Phase</b>	<p>The likely emissions from construction activities would include the following:</p> <ul style="list-style-type: none"> <li>• Emissions from welding activities</li> <li>• Vehicular emission from increased traffic volume from vehicles used for transport of construction material, equipment, and accessories,</li> <li>• Emissions from operation of emergency diesel generator.</li> <li>• Fugitive emissions from site clearing, digging, filling, material handling, transportation, use of construction machinery, etc.,</li> <li>• Fugitive dust emission from unpaved roads,</li> <li>• Dust emissions from batching plant,</li> <li>• Movement of Material and machinery</li> <li>• Construction related activities including site clearance and boundary wall construction (in case of solar) foundation activities, erection of modules/ Wind Turbine Generators (WTG’s) , installation of mechanical and electrical components, construction of site offices, switchyards, laying of transmission line construction of roads and drains etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Vehicular emission will be controlled through proper maintenance of vehicles.</li> <li>• Adequate stack height as per Central Pollution Control Board (CPCB) norms shall be provided for DG sets,</li> <li>• Maintain good condition of construction machinery, DG sets; only authorized operators to operate</li> <li>• Erect hoarding around/cover dust generating activities</li> <li>• Equipment and machinery, as appropriate will be fitted with dust suppression devices such as water sprinklers, dust bags, cyclone etc.</li> <li>• Dust generating activities from construction to be avoided/ minimized by suitable water sprinkling</li> <li>• Equipment’s/ machinery to be properly maintained to minimize smoke in the exhaust emissions.</li> <li>• Machinery to be turned off when not in use.</li> </ul>

Environmental Parameters	Activities	Mitigation/Management Measures
	<ul style="list-style-type: none"> <li>Erection, installation, testing and automation.</li> </ul>	<ul style="list-style-type: none"> <li>Vehicles transporting materials will be covered by tarpaulin sheets</li> <li>Mixing equipment will be well sealed and equipped as per PCB norms.</li> <li>Use low-emission machinery and vehicles.</li> <li>Vehicle speed to be restricted to minimum speed at site to minimize potential for dust generation in the surroundings</li> <li>The Contractor will submit PUC certificates for all vehicles/equipment/machinery used for the project.</li> <li>Periodical monitoring of fine Particulate Matters (PM10 and PM2.5) will be carried out as per Environmental Monitoring Plan. Frequency to be defined as part of monitoring plan</li> <li>The monitoring results will be evaluated, and adequate measures will be undertaken if the monitoring results are observed exceeding the prescribed acceptable limits. The acceptable limits of some pollutants (for reference) are provided in National Ambient Air Quality Standards, Central Pollution Control Board, 2009. <i>(Given in Appendix-F)</i></li> <li>Only well-maintained equipment conform to the MoEFCC<sup>11</sup>/CPCB/State specific Pollution Control Boards noise standards will be operated on site.</li> <li>To minimize the use of DG set for power usage (wherever possible)</li> <li>Implement an exhaust emission control program.</li> <li>All equipment and vehicles operational on site shall be chosen and serviced regularly to keep emissions to a minimum.</li> <li>Waste and material storage shall ensure that dust, emissions are restricted to a minimum. Where any monitoring is being carried out, all records shall be retained and reported upon as appropriate.</li> <li>All personnel on site shall be made aware of their responsibilities to</li> </ul>

Environmental Parameters	Activities	Mitigation/Management Measures
		<p>ensure that no air pollution incidents occur.</p> <ul style="list-style-type: none"> <li>In the event that an air pollution incident occurs then the Emergency Control Guidelines listed below of this procedure shall be followed.</li> </ul>
<b>Operation phase</b>	<ul style="list-style-type: none"> <li>Emissions from Diesel Generator (DG) set stack used during emergencies</li> <li>Day to day operations</li> <li>Regular operation and maintenance of Switch yards and Solar Panels/ Wind turbines.</li> <li>Communications infrastructure.</li> <li>General community acceptance and hence taking forward from the site selection to the operation</li> </ul>	<ul style="list-style-type: none"> <li>D.G. set will meet the standards laid down by CPCB and DG sets to be used for emergency/power backup (wherever possible),</li> <li>Company shall take all the possible measures to avoid all kind of emission from transportation. Transportation shall be carried out in covered vehicles.</li> <li>Point sources of emissions shall be provided with adequate air pollution control devices.</li> </ul>

**5.4.1.1 Roles and Responsibilities: Air Emission Management**

- Safety Manager shall identify operations and activities which cause air pollution using Environment Risk Assessment process.
- In case of new construction activities, any requirements for air quality monitoring throughout the construction shall be identified by the Site EHS In charge/Officer in consultation with department heads.
- All operations that have the potential to create air pollution shall be identified and specific risk assessments shall be completed by Site EHS In charge/Officer. These operations shall be carefully planned and managed to ensure that impacts are kept to a minimum.
- To control dust, emissions due to construction activities water sprinkling schedule shall be developed by the site supervisor in consultation with Site EHS/Safety Manager.

**5.4.2 Water & Wastewater Management Procedures**

The measures to be undertaken to prevent, minimize, and manage water pollution, are discussed in **Table 5-2** below:

**Table 5-2: Water & Wastewater Management Procedure**

Environmental Parameters	Activities	Mitigation/Management Measures
<b>Water &amp; Wastewater Pollution</b>		
<b>Construction Phase</b>	<ul style="list-style-type: none"> <li>The liquid effluents generated during the construction phase will include domestic sewage from labour camp operations.</li> <li>Surface runoff, accidental spillage from storage area or improper disposal of wastes.</li> <li>Runoff into rainwater channels</li> </ul>	<ul style="list-style-type: none"> <li>As part of the site preparation stage, a temporary drainage and sewerage system will be constructed for the camp. The sewerage system will consist of soak pits for the collection of wastewaters from the camp kitchen and washing areas. Sewage from the toilets will go into lined septic tanks. Sewage disposal trucks will be used to periodically remove the sludge/sewage from the site.</li> <li>Planning of toilets, soak pits and septic tanks, waste collection areas will be away from natural drainage channels.</li> <li>Provision for impervious storage area, especially for fuel &amp; lubricant, hazardous waste, etc. will be made onsite.</li> <li>Adequate arrangements for storm water management during construction period to be made to avoid sediment runoff from the site and to avoid water logging. Storm water flow would be directed to the existing channels (if present) with silt traps to avoid sedimentation of the channels or the receiving water body.</li> <li>Labourers should be given training towards proactive use of designated areas/bins for waste disposal and encouraged for use of toilets. Open defecation and random disposal of sewage should be strictly restricted; and</li> <li>Spill/ leakage clearance plan to be adopted for immediate cleaning of spills and leakages.</li> <li>Suitable storage areas shall be prepared to ensure that surface and ground water quality is not put at risk from inadequate material and chemical storage.</li> <li>Any activity taking place in, above or near watercourses / natural or manmade nallah/ peripheral drains, shall be carefully monitored to ensure that no pollution incidents occur.</li> <li>Where any monitoring is being carried out all records shall be retained and reported on as appropriate.</li> <li>All personnel on site shall be made aware of their responsibilities to ensure that no water pollution incidents occur and shall be trained in appropriate methods of containment relevant to their work activity.</li> <li>Use water efficiently at construction and operation phase to reduce the amount of wastewater generation.</li> <li>Water shall be recycled and reused to the maximum possible extent to reduce the quantity of wastewater generated and fresh water being used.</li> </ul>

Environmental Parameters	Activities	Mitigation/Management Measures
<b>Operation phase</b>	<ul style="list-style-type: none"> <li>• Accidental spillage from storage area and improper disposal of wastewater</li> <li>• Runoff into rainwater channels</li> <li>• Operation phase will involve generation of domestic sewage</li> </ul>	<ul style="list-style-type: none"> <li>• Records of water consumption shall be maintained.</li> <li>• In case of ground water abstraction, water meters to be installed at the outlet to record water consumption.</li> <li>• Domestic sewage shall be treated through septic tank and a soak pit arrangement.</li> <li>• In the event that a water pollution incident occurs then the Emergency Control Guidelines below shall be followed.</li> <li>• Use water-efficient cleaning techniques for solar panels, such as automated robotic systems that use minimal water or dry-cleaning methods.</li> <li>• Implement dry cooling systems instead of wet cooling systems.</li> <li>• Educate staff and operators about the importance of water conservation and train them on the best practices to minimize water usage during plant operation.</li> <li>• The drainage and sewerage system to be provided for the collection and treatment of wastewater at the substation areas.</li> <li>• Drain and soak pit to be cleaned and kept unclogged.</li> <li>• Implement erosion and sediment control measures, such as silt fences or sediment basins, to prevent sediment-laden runoff.</li> <li>• Implement a stormwater management plan to control runoff and filter out pollutants.</li> <li>• Regular monitoring of water quality and compliance with environmental regulations.</li> <li>• Substation transformers located within secure and impervious sump areas with a storage capacity of at least 100% of the capacity of oil in transformers and associated reserve tanks</li> <li>• Careful design using appropriate technologies to minimize hazards.</li> <li>• Suitable pollution control equipment shall be installed for the pollutants in the wastewater.</li> <li>• Sampling must be conducted on a quarterly basis and include sampling locations, sampling method.</li> </ul>

#### 5.4.2.1 Roles and Responsibilities –Water and Waste water management

- EHS/Safety Manager shall identify operations and activities which cause water pollution using Environment Risk Assessment. All watercourses on or adjacent to the site shall be identified and recorded and maintained with EHS Manager.
- EHS/Safety Manager shall ensure that the civil contractor’s site supervisor develops a water balance for construction phase mentioning water requirement and its sources along with wastewater generation and disposal mechanism as per Water and Wastewater Inventory.

#### 5.4.3 Noise & Vibration Management Procedure

The following steps (**Table 5-3**) will be implemented to prevent, reduce, and manage noise and vibration:

**Table 5-3: Noise and Vibration Management Procedure**

Environmental Parameters	Activities	Mitigation/Management Measures
<b>Noise &amp; Vibration</b>		
<b>Construction Phase</b>	<ul style="list-style-type: none"> <li>• Site preparation (also be classified as pre-construction activities) including clearance of vegetation, levelling of land etc., and is followed by foundation activities including auguring of land to establish the foundation support, civil, mechanical, and electrical work, construction of ancillaries and support structures such as permanent site office, transmission line corridors, substations/switch yards etc.</li> <li>• Noise generated from DG set operation (as applicable) machines, equipment at project site, vehicle movement, maintenance work at any site.</li> </ul>	<p>Methods for prevention and control of sources of noise emissions depend on the source and proximity of receptors. Noise reduction options that should be considered include:</p> <ul style="list-style-type: none"> <li>• Use equipment with low noise emissions.</li> <li>• Use construction equipment and techniques which are low noise in operations (as feasible). Equip machinery with mufflers and noise absorption and anti-vibration mats (as feasible).</li> <li>• Implement noise barriers and soundproof enclosures for high noise generating units/equipment as required based on the impact</li> <li>• Schedule noise generating activities during daytime hours (9am-6pm),</li> <li>• Limiting the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas</li> <li>• Company shall comply with the standards/guidelines for control of noise from stationary Diesel Generator sets. These standards and guidelines are prescribed under notification of Ministry of Environment &amp; Forest, Govt. of India. G.S.R 371 (E).</li> <li>• HFE will ensure to restrict noise level within the permissible limit, as per the statutory requirements. Day time will be considered from 6.00am to 10.00pm &amp; Nighttime shall mean from 10.00pm to 6.00am. To confirm this, following measures will be undertaken:               <ul style="list-style-type: none"> <li>o The noise emitted from the equipment will be limited to a spatially averaged value of 90 dB (A) at 1 m (near field) distance from the</li> </ul> </li> </ul>



Environmental Parameters	Activities	Mitigation/Management Measures
		<p>machine or enclosure and 63 dB (A) at 122 m (far field) from the machine or enclosure for the base option. Standard options should be available which would reduce these values to either 85 dB (A) (near field) and 63 dB (A) (far field).</p> <ul style="list-style-type: none"> <li>o Noise emission generated from DG sets to be used for emergency power supply will be minimized through provision of acoustic enclosures and other noise generating activities will be restricted to daytime only.</li> <li>o Principal sources include exhaust fans and resulting in noise from the outlet of the stack and turbine generators. Therefore, efficient and less noise generating machinery will be used for such purposes and regular maintenance and upkeep of the machinery will be done to ensure smooth operations.</li> <li>o The noise emitted under abnormal, or emergency conditions would only occur occasionally and be very infrequent. Noise under these intermittent / emergency condition may reach a level of 115 dB (A) at the point of occurrence but would fall of rapidly to acceptable limits at short distances. Also, it has to be ensured that such vents and valves will be located at a safe distance from normal work area of the plant.</li> <li>o All efforts should be taken at the design stage to minimize emission of high sound levels from the equipment as per Occupational Safety and Health Administration (OSHA) standard norms.</li> <li>o Personal protective equipment for people working in high noise areas.</li> <li>o Providing noise control measures such as acoustic hoods, silencers, enclosures etc. on the sources of noise generation.</li> <li>• Re-locating noise sources to fewer sensitive areas to take advantage of distance and shielding</li> <li>• Conduct regular noise monitoring and ensure compliance with noise regulations.</li> <li>•</li> </ul>
<p><b>Operation phase</b></p>	<ul style="list-style-type: none"> <li>• The operation activities include power generation and evacuation of the power generated via transmission lines to the switch yard from where it is evacuated to the nearest local substation. The</li> </ul>	<ul style="list-style-type: none"> <li>• Regularly maintain and lubricate turbines to minimize noise.</li> <li>• Conduct periodic noise monitoring and address any exceedances.</li> <li>• Implement setback distances from noise-sensitive areas.</li> </ul>

Environmental Parameters	Activities	Mitigation/Management Measures
	maintenance aspects of the project components including (but not limited to) cleaning of solar modules, removal of weeds, maintenance of WTGs and solar modules	<ul style="list-style-type: none"> <li>• Identification of high noise generating machinery via. survey.</li> <li>• Surveys shall be undertaken by third party or in-house using competent personnel/ experts. In case of in-house survey, noise meters used shall be calibrated.</li> <li>• Noise survey shall be exposure based i.e.; 8 hour weighted average.</li> <li>• Employees or workers engaged through the contractors shall not be exposed to a noise level greater than 85 dB for duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 db.</li> <li>• The use of hearing protection shall be enforced actively when the equivalent sound level over 8 hours reaches 85 dB, the peak sound levels reach 140 dB, or the average maximum sound level reaches 110 db. Hearing protective devices such as Earplugs/Muffs provided shall be capable of reducing sound levels at the ear to at least 85 dB</li> <li>• Although hearing protection is preferred for any period of noise exposure in excess of 85 dB, an equivalent level of protection can be obtained, but less easily managed, by limiting the duration of noise exposure. For every 3 dB increase in sound levels, the ‘allowed’ exposure period or duration should be reduced by 50 percent.</li> <li>• Prior to the issuance of hearing protective devices as the final control mechanism, use of acoustic insulating materials, isolation of the noise source, and other engineering controls should be investigated and implemented, where feasible.</li> <li>• Periodic half yearly medical hearing checks i.e., audiometric test shall be conducted by a certified doctor on workers exposed to high noise level.</li> <li>• Company shall conduct regular ambient air monitoring with respect to noise and shall ensure that the noise level in the industrial area is regulated within the following specified limits: 75 dB during the daytime (06:00-22:00); and 70 dB during Nighttime.</li> </ul>

Environmental Parameters	Activities	Mitigation/Management Measures
<b>Noise &amp; Vibration</b>		

Environmental Parameters	Activities	Mitigation/Management Measures
<b>Construction Phase</b>	<ul style="list-style-type: none"> <li>• Site preparation (also be classified as pre-construction activities) including clearance of vegetation, levelling of land etc., and is followed by foundation activities including auguring of land to establish the foundation support, civil, mechanical, and electrical work, construction of ancillaries and support structures such as permanent site office, transmission line corridors, substations/switch yards etc.</li> <li>• Noise generated from DG set operation (as applicable) machines, equipment at project site, vehicle movement, maintenance work at any site.</li> </ul>	<p>Methods for prevention and control of sources of noise emissions depend on the source and proximity of receptors. Noise reduction options that should be considered include</p> <ul style="list-style-type: none"> <li>• Use equipment with low noise emissions.</li> <li>• Use construction equipment and techniques which are low noise in operations (as feasible). Equip machinery with mufflers and noise absorption and anti-vibration mats (as feasible).</li> <li>• Implement noise barriers and soundproof enclosures for high noise generating units/equipment as required based on the impact</li> <li>• Schedule noise generating activities during daytime hours (9am-6pm),</li> <li>• Limiting the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas</li> <li>• Company shall comply with the standards/guidelines for control of noise from stationary Diesel Generator sets. These standards and guidelines are prescribed under notification of Ministry of Environment &amp; Forest, Govt. of India. G.S.R 371 (E).</li> <li>• HFE will ensure to restrict noise level within the permissible limit, as per the statutory requirements. Day time will be considered from 6.00am to 10.00pm &amp; Nighttime shall mean from 10.00pm to 6.00am. To confirm this, following measures will be undertaken: <ul style="list-style-type: none"> <li>o The noise emitted from the equipment will be limited to a spatially averaged value of 90 dB (A) at 1 m (near field) distance from the machine or enclosure and 63 dB (A) at 122 m (far field) from the machine or enclosure for the base option. Standard options should be available which would reduce these values to either 85 dB (A) (near field) and 63 dB (A) (far field).</li> <li>o Noise emission generated from DG sets to be used for emergency power supply will be minimized through provision of acoustic enclosures and other noise generating activities will be restricted to daytime only.</li> <li>o Principal sources include exhaust fans and resulting in noise from the outlet of the stack and turbine generators. Therefore, efficient and less noise generating machinery will be used for such purposes and regular</li> </ul> </li> </ul>

Environmental Parameters	Activities	Mitigation/Management Measures
		<p>maintenance and upkeep of the machinery will be done to ensure smooth operations.</p> <ul style="list-style-type: none"> <li>o The noise emitted under abnormal, or emergency conditions would only occur occasionally and be very infrequent. Noise under these intermittent / emergency condition may reach a level of 115 dB (A) at the point of occurrence but would fall of rapidly to acceptable limits at short distances. Also, it has to be ensured that such vents and valves will be located at a safe distance from normal work area of the plant.</li> <li>o All efforts should be taken at the design stage to minimize emission of high sound levels from the equipment as per Occupational Safety and Health Administration (OSHA) standard norms.</li> <li>o Personal protective equipment for people working in high noise areas.</li> <li>o Providing noise control measures such as acoustic hoods, silencers, enclosures etc. on the sources of noise generation.</li> <li>• Re-locating noise sources to fewer sensitive areas to take advantage of distance and shielding</li> <li>• Conduct regular noise monitoring and ensure compliance with noise regulations.</li> <li>•</li> </ul>
<p><b>Operation phase</b></p>	<ul style="list-style-type: none"> <li>• The operation activities include power generation and evacuation of the power generated via transmission lines to the switch yard from where it is evacuated to the nearest local substation. The maintenance aspects of the project components including (but not limited to) cleaning of solar modules, removal of weeds, maintenance of WTGs and solar modules</li> </ul>	<ul style="list-style-type: none"> <li>• Regularly maintain and lubricate turbines to minimize noise.</li> <li>• Conduct periodic noise monitoring and address any exceedances.</li> <li>• Implement setback distances from noise-sensitive areas.</li> <li>• Identification of high noise generating machinery via. survey.</li> <li>• Surveys shall be undertaken by third party or in-house using competent personnel/ experts. In case of in-house survey, noise meters used shall be calibrated.</li> <li>• Noise survey shall be exposure based i.e.; 8 hour weighted average.</li> <li>• Employees or workers engaged through the contractors shall not be exposed to a noise level greater than 85 dB for duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 db.</li> <li>• The use of hearing protection shall be enforced actively when the equivalent sound</li> </ul>

Environmental Parameters	Activities	Mitigation/Management Measures
		<p>level over 8 hours reaches 85 dB, the peak sound levels reach 140 dB, or the average maximum sound level reaches 110 db. Hearing protective devices such as Earplugs/Muffs provided shall be capable of reducing sound levels at the ear to at least 85 dB</p> <ul style="list-style-type: none"> <li>• Although hearing protection is preferred for any period of noise exposure in excess of 85 dB, an equivalent level of protection can be obtained, but less easily managed, by limiting the duration of noise exposure. For every 3 dB increase in sound levels, the 'allowed' exposure period or duration should be reduced by 50 percent.</li> <li>• Prior to the issuance of hearing protective devices as the final control mechanism, use of acoustic insulating materials, isolation of the noise source, and other engineering controls should be investigated and implemented, where feasible.</li> <li>• Periodic half yearly medical hearing checks i.e., audiometric test shall be conducted by a certified doctor on workers exposed to high noise level.</li> <li>• Company shall conduct regular ambient air monitoring with respect to noise and shall ensure that the noise level in the industrial area is regulated within the following specified limits: 75 dB during the daytime (06:00-22:00); and 70 dB during Nighttime.</li> </ul>

Noise limits for different working environments are provided in **Table 5-4** below:

**Table 5-4: Noise limit for Various Working Environment**

(General EHS Guidelines: Occupational Health and Safety, International Finance Corporation)

Noise Limits for Working Environment General EHS Guidelines: Occupational Health and Safety, International Finance Corporation		
Location/Activity	Equivalent Level LAeq, 8h	Maximum, LA max, Fast
Heavy Industry (No demand for oral communication)	85 dB(A)	110 dB(A)
Light industry (Decreasing demand for oral communication)	50-65 dB(A)	110 dB(A)
Open offices, control rooms, service counters or similar	45-50 dB(A)	-
Individual offices (no disturbing noise)	40-45 dB(A)	-

Classrooms, lecture halls	35-40 dB(A)	-
Hospitals	30-35 dB(A)	40 dB(A)

**Ambient Air Quality Standards in respect of Noise**  
(The Noise Pollution (Regulation and Control) Rules, 2000)

Category of Area/Zone	Limit in dB(A) Leq	
	Day Time	Nighttime
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Silence Zone	50	40

**5.4.3.1 Roles and Responsibilities –Noise & Vibration management**

- EHS/Safety Manager shall identify operations and activities which cause Noise & Vibration using Environment Risk Assessment.
- EHS/Safety Manager shall ensure that the civil contractor’s site supervisor proper noise & vibration management measures in place during construction phase.

**5.4.4 Waste Management Procedures**

Solid and hazardous waste will arise from both the construction and operation of the project. Construction-generated solid waste will encompass labor camp waste, garbage waste, metal scrap, and surplus construction materials. The primary types of waste expected during both the construction and operational phases are outlined in Table 5-5 below:

**Table 5-5 Types of Wastes and their Disposal Methods**

S. No.	Waste Type	Source	Method of Disposal
<b>Non-hazardous waste</b>			
1.	Domestic solid waste	Labour activities	Waste will be segregated onsite and will be disposed of at site as approved by local authority.
2.	Construction Debris (excavated earth)	Construction	Excavated materials to be used for backfilling and levelling and other debris shall be used for road access road, construction. etc.
3.	Sludge from Wastewater Septic Tanks	Labour Camp	Collected and disposed of through contractors
4.	All non- recyclables	Construction Labour camps	Collected and disposed of by the contractor at activities and designated landfill sites.
<b>E-waste</b>			
5.	Discarded or Broken Solar Panels from solar plants	Solar Power Plant	Buyback arrangement or SPCB authorised recycler for disposal of broken PV module

S. No.	Waste Type	Source	Method of Disposal
6.	Damaged or Non-Functional Batteries	Wind/Solar Power Plant	Buy Back Arrangement or through authorised recyclers
7.	Electronic and electrical components used in turbines and associated infrastructure	Wind/Solar Power Plant	Buy Back Arrangement or through authorised recyclers
<b>Hazardous waste</b>			
8.	Used oil/ waste oil	DG set, construction machinery	Collected and disposed of through approved recyclers in accordance with The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
9.	Oil contaminated rags	Cleaning activities	

The procedures discussed in Table 5-6 below, have been extracted from regulatory requirements in India and international good practices of waste management for the management of different types of waste stated above.

**Table 5-6 Waste Management Procedure**

Environmental Parameters	Activities	Mitigation/Management Measures
<b>Solid &amp; Hazardous Wastes</b>		
<b>Construction Phase</b>	<ul style="list-style-type: none"> <li>Site preparation, Construction and commissioning of plant and the associated facilities</li> <li>Temporary accommodation for workers</li> <li>Other operations like equipment and vehicle maintenance, road construction, site preparation etc.</li> <li>Operation and maintenance of infrastructures</li> <li>Operation of Transformer and DG Sets</li> </ul>	<ul style="list-style-type: none"> <li>A waste inventory of various waste generated will be prepared and periodically updated.</li> <li>No solid waste generated within the premises shall be littered on the street, open spaces drain or water bodies.</li> <li>A source-segregated waste storage system is recommended to be adopted inside the Company premises. The biodegradable waste shall not be mixed with any other type of wastes such as domestic hazardous wastes or construction and demolition waste.</li> <li>Different streams of solid wastes generated (as mentioned above) shall be collected through housekeeping personnel in a segregated fashion from all the areas.</li> <li>The bigger waste skips/ containers shall be colour-coded - Green Bin (for storing biodegradable waste), Blue Bin (dry recyclables), Black Bin (institutional hazardous waste) and White skips (Construction and demolition wastes).</li> <li>The bins shall have rain protection lids / flaps and shall have 'easy to operate' design for handling, transfer of waste and handling during evacuation of waste should be user friendly and not cumbersome.</li> <li>Identify location of the waste skips/ containers within the premises.</li> <li>The waste trucks of the hired waste collection agencies shall visit these locations for waste pick up and transportation to the waste processing / disposal facility.</li> <li>The concept of 3 Rs- Reduce, Recycle and Reuse shall be adopted to manage the non- hazardous solid waste generated within the premises.</li> <li>Burning of waste material shall not be allowed.</li> </ul>

Environmental Parameters	Activities	Mitigation/Management Measures
		<ul style="list-style-type: none"> <li>• Initiatives must be taken to reuse and recycle of waste materials.</li> <li>• Training on solid waste management procedures shall be part of the induction training for workers/ employees.</li> <li>• Waste collection agencies/ recycling agencies, authorized by State pollution control Board shall be hired for their services for collection of Waste in segregated fashion.</li> <li>• Prior to construction, Company will provide/arrange for adequate sanitation facilities and will provide septic tanks followed by soak pits to prevent groundwater contamination at project site for the proper management of domestic waste.</li> <li>• Company will ensure collection, segregation of concrete, soil and others and storage of construction and demolition waste generated, as directed, or notified by the concerned local authority as per the requirements of Construction and Demolition Waste Management Rules 2016.</li> <li>• Wherever applicable (in case of C&amp;D waste generated more than 20 tons in one day or 300 tons per project in a month), submit waste management plan and obtain appropriate approvals from the local authority before starting construction or demolition.</li> <li>• The excavated soil generated will be reused for site filling and levelling operation to the maximum extent possible.</li> <li>• Biodegradables, Dry Waste (Plastic, Paper, metal, Wood) and Domestic Hazardous Waste (diapers, napkins, mosquito repellents, and cleaning agents) will be properly segregated and stored in designated colour coded waste bins/containers as per the requirements of Solid Waste Management Rules 2016 (as amended).</li> <li>• The scrap metal waste (copper, iron, aluminium) generated from erection of structures and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers</li> <li>• Other Dry waste will be collected by Government approved waste contractors and transferred to an appropriately licensed local waste management facility for treatment and disposal.</li> <li>• The Electronic wastes (i.e., electrical structural) generated will not be stored more than 180 days at Site and will be channelized through authorized collection centre, dismantler, recycler etc. or through the designated take back service provider of the producer to authorized dismantler or recycler.</li> <li>• The Company will maintain internal records as per the provisions of E-waste Management Rules 2022.</li> <li>• Material Safety Data Sheets for all applicable materials present on site will be readily available to onsite personnel.</li> </ul>



Environmental Parameters	Activities	Mitigation/Management Measures
		<ul style="list-style-type: none"> <li>• Biomedical waste generated at the Site will be stored in coloured bags or containers in the manner as specified in Schedule I of Bio-Medical Waste Management Rules 2019 and Company will hand over segregated waste as per the Schedule-I to common bio-medical waste treatment facility for treatment, processing, and final disposal.</li> <li>• Company will not dispose used batteries in any manner other than depositing with the dealer/ manufacturer/ importer/ assembler/ registered recycler/ reconditioner/ at the designated collection centres as specified under Batteries (Management and Handling) Rules 2022.</li> <li>• Company will ensure to not litter the plastic waste and segregated storage of waste at source and handover segregated waste to registered waste pickers, registered recyclers, or waste collection agencies as per Plastic Waste Management Rules 2022 and also Compliance of the Rules along with the State-specific Rules with respect to size, thickness and ban of Plastic carry bags and other material.</li> </ul>
<b>Operation phase</b>	<ul style="list-style-type: none"> <li>• Operation and maintenance (O&amp;M) of plant and the associated facilities throughout the project life cycle</li> <li>• Operation and maintenance of infrastructures</li> <li>• During operation phase, the waste generated from the Project will include domestic waste at site office, scrap materials like scrap tools, damaged PPEs etc. and hazardous waste like waste oil, lubricants, oil contaminated rags, damaged batteries, and waste oil filter.</li> </ul>	<ul style="list-style-type: none"> <li>• Sewage will be disposed through a combination of septic tanks and soak pits.</li> <li>• Record of all Solid Waste and Solid Waste Disposal on construction site shall be maintained.</li> <li>• EPC Contractor need to have buyback agreements for defunct electronic equipment/parts of WTGs.</li> <li>• A designated area will be demarcated within the module premises for storage of defunct and broken material/equipment with restricted access and on impervious surface.</li> <li>• The Electronic wastes (i.e., electrical structural) generated will not be stored more than 180 days at Site and will be channelized through authorized collection centre, dismantler, recycler etc. The Company will maintain internal records as per the provisions of E-waste Management Rules 2022.</li> <li>• Proper segregation, periodic collection, and disposal of the domestic waste to Government approved waste contractors and transferred to an appropriately licensed local waste management facility for treatment and disposal will be carried out.</li> <li>• Proper drainage system will be provided to avoid wastewater accumulation.</li> <li>• Biodegradables, Dry Waste (Plastic, Paper, metal, Wood) and general Municipal waste from office will be properly segregated and stored in designated colour coded waste bins/containers as per the requirements of Solid Waste Management Rules 2016.</li> <li>• The scrap metal waste generated from erection of structures and related construction activities will be</li> </ul>

Environmental Parameters	Activities	Mitigation/Management Measures
		<p>collected and stored separately in a stack yard and sold to local recyclers.</p> <ul style="list-style-type: none"> <li>• Other Dry waste will be collected by Government approved waste contractors and transferred to an appropriately licensed local waste management facility for treatment and disposal.</li> <li>• Company will ensure to not litter the plastic waste and segregated storage of waste at source and handover segregated waste to registered waste pickers, registered recyclers, or waste collection agencies as per Plastic Waste Management Rules 2022 and also Compliance of the Rules along with the State-specific Rules with respect to size, thickness and ban of Plastic carry bags and other material.</li> <li>• Biomedical waste generated at the Site will be stored in coloured bags or containers in the manner as specified in Schedule I of Bio-Medical Waste Management Rules 2016 (as amended) and Company will hand over segregated waste as per the Schedule-I to common bio-medical waste treatment facility for treatment, processing, and final disposal.</li> <li>• Company will not dispose used batteries in any manner other than depositing with the dealer/ manufacturer/ importer/ assembler/ registered recycler/ reconditioner/ at the designated collection centres as specified under Batteries (Management and Handling) Rules 2022.</li> <li>• Material Safety Data Sheets for all applicable materials present on site will be readily available to onsite personnel.</li> </ul>

**5.4.4.1 Construction and Demolition (C&D) Waste Management**

- The civil contractor responsible for the construction activities shall be responsible for sound handling and management of the C&D and municipal waste at the construction site including handling, storage, collection, re-use and clearing of the wasted construction material. The non-utilizable and utilizable C&D waste generated at site will be stored in a segregated manner at the construction site.
- Dumping of C&D waste in non-designated sites shall be strictly prohibited.
- All construction/demolition waste will be stored within the site itself. Metal mesh screen or GI screens will be provided so that the waste does not get scattered.
- C&D waste shall be stored separately and not allowed to get mixed with other waste (e.g., municipal / biomedical / e-waste / hazardous etc.).
- Scrap metals shall be stored separately and shall be hauled to scrap metal dealers.
  - Scrap metal from construction, renovation, or maintenance work shall be deposited separately. Oils shall be purged prior to disposal of metals into this container.
  - The scrap metal skip should be covered when not in active use.
- The civil contractor / contractor shall adopt the concept of 3 Rs – Reduce, Reuse, Recycle. The contractor will formulate and submit a C&D waste management plan as a part of its technical proposal at the bidding stage.
- C&D waste shall be stored at the construction site in either skips or suitable containers and shall be directly transported to a suitable disposal facility by engaging services of an authorized collection agency.
- The civil contractors to ensure that appropriate numbers of skip containers or trolleys are provided on construction site, which can be removed with skip lifters as the case may be.

- The storage bins/ designated area shall be in accordance with the quantum and nature of the C&D waste.
- Rain protection (shed and at the floor) to be provided for the storage of construction materials.
- Clearly label the containers, preferably with waterproof signage, detailing which material can be disposed of in each one.
- Efforts shall be made to reduce the rate of waste generation by adopting efficient construction techniques and limiting waste generating activities. The measures for controlling construction waste may include limiting site clearance activities, plan stocking and gathering of construction materials and equipment, fencing around the construction yard, maintaining existing right of way to carry construction materials, adopting proper sanitation system for employees, banning of waste burning, and quality housekeeping.
- Stockpiles of construction materials shall be covered in order to protect them from wind and weathering action.
- A designated place shall be identified and well-labelled for waste stocking with appropriate impermeable linings.
- For controlling runoff from construction yard and liquid waste, appropriate measures such as provision of a garland drain will be made.
- In case of road construction within the premises, empty containers of paint, prime coat, tack coat (considered as hazardous waste) shall be stored at a designated place / or a skip and sent to an authorized hazardous waste handler. All the records of the sale of items to authorized hazardous waste vendors will be preserved 7 years after completion and final payment of the contract.
- Company shall pay relevant charges for collection, transportation, processing, and disposal of C&D waste generated by them, as notified by the concerned authorities. Payment shall be as per the provisions made under the Construction and Demolition Waste Management Rules, 2016 and is dependent on the quantum of C&D waste generated. [if Company generates more than 20 tons or more in one day or 300 tons in a month, then payment for waste processing and disposal shall also be made along with charges for storage and collection].

#### **5.4.4.2 Biodegradable waste including Horticultural waste (Green Waste)**

- All the biodegradable waste shall be stored separately at their source of generation and not be mixed with any other types of waste such as hazardous waste, C&D waste, dry recyclables.
- The biodegradable waste shall be collected from all the points of generation by the housekeeping staff and brought to Green coloured, high-capacity waste containers, located at designated locations within the premises.
- Identify location of the waste skips/ containers within the premises.
- The waste trucks of the hired waste collection agencies shall visit these locations for waste pick up and transportation to the waste processing using a biological waste processing technology such as composting, bio methanation etc. and relevant certificate/waste receipts/registers to be obtained/maintained

#### **5.4.4.3 Dry Trash (Recyclables) Management**

- All the dry recyclable items such as paper, plastic sheets, plastic cups, plastic cans, PET bottles, metal scrap, cardboard box etc. shall be collected and stored separately and not be mixed with any other types of waste such as biodegradable waste, hazardous waste, C&D waste. Such waste shall be sold to recyclers/ scrap dealers.
- Single Use plastic to not be used with the project premises and has been phased out in India.
- The waste trucks of the hired waste collection agencies shall visit these locations for waste pick up and transportation to recycling facility or resale/ scrap market.

#### **5.4.4.4 Electronic Waste Management**

Company shall ensure that e-waste generated by them is channelized through collection centre or dealer of authorized producer or dismantler or recycler or through the designated take back service provider of the producer to authorized dismantler or recycler.

#### **Broken/Discarded Solar Modules/WTG equipment (Storage and disposal)**

- HFE to ensure usage of appropriate equipment such as for collection of broken PV module
- Broken solar module/ electronic components of WTG will be stored separately at secured storage area.
- HFE will ensure that no damage is caused to the environment during storage and transportation
- HFE will sign an agreement with the PV module/WTG supplier for the buyback arrangement or with the SPCB authorised recycler for disposal of broken PV module/WTG .
- Broken solar panels and electronic equipment of WTG, will be sent back to the vendor as part of buyback arrangement or will be disposed through SPCB authorised recycler.
- HFE will maintain record of collection, sale, transfer, and storage of wastes and make these records available for inspection to government agencies

#### **5.4.4.5 Sewage Disposal**

- Appropriate number of toilets, separate for male and female employees and workers shall be provided in and shall be maintained in hygienic conditions. The toilets shall be connected to sewerage system for its ultimate treatment in Sewage Treatment Plant for suitable capacity

#### **5.4.4.6 Procedure for Hazardous Waste Management**

##### **Legal Compliances:**

- The company is required to identify all hazardous waste generated during both the construction and operational phases in accordance with the Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016 (HMR 2016).
- The company holds the responsibility for the safe and environmentally sound management of hazardous wastes, either by sending or selling the waste to an authorized actual user or by disposing it in an authorized facility.

##### **Storage of Wastes:**

- As per Rule 8 of the HMR 2016, hazardous wastes cannot be stored on-site for a period exceeding 90 days. In case of storage of hazardous wastes on-site for a period in exceedance of that specified by the SPCB, management is required to intimate the same to the SPCB and obtain written permission to do so.
- A hazardous waste inventory form attached as Hazardous Waste Management Inventory shall be maintained onsite by Site Safety Officer.
- Company shall ensure that potential hazardous solid and liquid wastes (such as used/ waste oils, etc.) are not disposed of in dumpsters designated for general domestic trash.
- Company shall ensure provision of secured storage (with adequate secondary containment) for all hazardous wastes generated on site.
- All containers containing liquid hazardous material (such as used oil, used transformer oil) should be kept in bunded storage or on bund trays.
- The designated hazardous waste storage area shall have proper enclosures with conspicuous signage, including safety requirements such as fire extinguishers and spill management kit (s).
- Authorized Personnel shall ensure the availability of PPE in stores and workers must wear the PPE as per the PPE matrix before handling any wastes.



- In order to have appropriate measures to prevent percolation of spills, leaks etc. to the soil and groundwater, the facility shall ensure that the storage area is provided with impervious flooring.

- Oil-soaked rags, used filters, used Personal Protective Equipment (PPE) (such as gloves, masks, etc.), empty chemical containers and liners are considered as hazardous and need to be disposed of as hazardous waste to SPCB authorized waste vendors.
- Company shall maintain a record of hazardous and other wastes managed by them in Form 3 and prepare and submit to the SPCB, an annual return containing the details specified in Form 4 on or before the 30th day of June following the financial year to which that return relates.

#### ***Disposal of Waste***

- The company shall ensure disposal of the hazardous waste to a SPCB authorized vendor/ facility only.
- The company shall ensure issuance of gate pass (challan) for all the hazardous wastes entering/leaving the site
- The company shall ensure that the hazardous waste authorization of the vendor is checked, and copies of the vendor operating permits and authorizations are maintained.
- Used/ Waste lead acid batteries (for e.g., lead-acid batteries associated with diesel generators) are to be handed over to a SPCB registered recycler as per the Batteries (Management & Handling) Rules, 2022 or to the supplier on a buy-back basis.

#### **5.4.4.7 Roles & Responsibilities – Solid Waste Management**

- Site EHS Manager/Safety Officer with assistance from Safety Officer shall identify the activities that generate solid waste from all locations within premises.
- Site EHS Manager/Safety Officer shall maintain record of all Solid Waste storage and disposal on construction site.
- The frequency of waste collection by these trucks shall be defined by phase of construction and waste quantity generated. Site EHS Manager, assisted by Site Safety Officer shall decide the frequency of collection.
- Quality housekeeping should be maintained by regular inspection and checking.
- Site EHS Manager shall ensure that solid waste generated is disposed of in compliance with relevant regulations.
- EHS Manager in consultation with the Safety Officer shall identify location of the waste skips/ containers within the premises.
- Pick up frequency of such wastes by the collection trucks shall be on weekly basis, however, it will be dependent upon the quantity of waste. EHS Manager assisted by Site Safety Officer shall decide the frequency of waste collection.
- EHS Manager of the site will ensure that solid waste generated is disposed of in compliance with relevant regulations.

## **5.5 Requirements**

HFE will be responsible for obtaining all necessary consents, licenses and permissions for its project operations as required by current legislation governing the protection of the environment. HFE is required to maintain a detailed Pollution Prevention Plan prior to commencement of works within any area of the site. This plan should be viewed as an evolving document(s), tailored to suit specific activities or work areas, and be continually reviewed at weekly meetings for the duration of the works. The detailed Pollution Prevention Plan will include, as a minimum, specific procedures relating to:

- Raw material handling and storage, including the waste storage locations of both periodic and regular secondary storage points and emergency spill response.
- Responsibilities and details for monitoring and training in relation to pollution prevention and mitigation measures.
- Design, management and mitigation measures for noise, air, odour including monitoring at the nearest sensitive receptors; and
- Design, management and mitigation measures for soil, ground, and surface water contamination, including monitoring at the nearest sensitive receptors.

The Pollution Prevention Plan along with the mitigation measures will be required to be implemented by the EPC/O&M Contractors. The contractors to ensure documentation of the implementation and reporting to HFE on regular basis (in the form of monthly/quarterly/half yearly/annual basis).

## 5.6 Monitoring

- The ESG Officer will conduct regular inspections of HFE's contractors' work to ensure adherence to the Pollution Prevention Plan.
- Routine assessments for visible signs of pollution, contamination, hygiene, and safety will be routinely performed within the plant premises and working areas.
- On-site meetings and inspections will be conducted as needed to verify the effective implementation of mitigation measures outlined in HFE's environmental plans related to pollution control. These sessions will address any additional issues or measures that may be relevant either before the commencement or during the works.
- Comprehensive records of all inspections and findings will be maintained for periodic review and discussion during regular meetings.

## 5.7 Records

Following records but not limited to the following shall be maintained by HFE at its project sites:

- Environmental and Social Aspects and Impacts (As per any detailed risk assessment study undertaken)
- Ambient Air monitoring reports (Format as attached in Appendix G)
- Water monitoring reports (Format as attached in Appendix G)
- Solid & Hazardous Waste Disposed
  - o Records of total quantity of waste generated and disposed of shall be maintained as proof for proper management as designed. The percentage of waste sent for reuse, recycle and disposal, categorized as per type of waste shall be maintained.
  - o Agreement with the SPCB authorized waste recycling/ reuse/disposal facility in case of e-waste disposal. Service Level Agreements (SLA) shall be executed with other waste disposal vendors, wherever possible.
  - o List of approved waste recyclers/disposal agency for different types of waste.
  - o Records of the injuries to the workers during the waste segregation, storage, loading and unloading process.
  - o Hazardous waste manifests copies; and
  - o Environmental Statements reports.
- Checklist of Noise Survey
- Soil Monitoring Reports

Documentation will be maintained for all preliminary, concluding, and regular monitoring or inspections conducted in construction areas, encompassing ecological and environmental considerations. These records will be securely stored in a designated location within the plant and will be accessible for both internal and external monitoring as needed. The record sheets will provide specifics such as the date, inspection location, frequency, findings, individuals notified, and prescribed actions, ensuring a comprehensive account of the monitoring and inspection activities.

## 5.8 Training

- All individuals on the site, including employees, subcontractors, suppliers, and visitors, will receive notification of pollution prevention requirements during the induction process.
- Toolbox talks will be utilized to educate site personnel and subcontractors about relevant aspects of environmental management corresponding to their assigned tasks.
- Consultation meetings will involve discussions on planned works, examination of other plans, and agreement on necessary mitigation and pollution prevention measures. Measures agreed upon during these meetings will

be communicated to relevant parties, including employees, subcontractors, suppliers, and others, through toolbox talks and formal communications (such as emails or memos), particularly when documentation is needed for record purposes (e.g., variations, auditing, and monitoring records).

- HFE will hold ultimate responsibility for overseeing and enforcing pollution prevention procedures to ensure the avoidance or mitigation of potential adverse impacts on human health or the environment during activities involving the handling of potential pollutants. It's clarified that pollution prevention procedures encompass various aspects, including but not limited to traffic, plant and materials management, air emission management, noise level management, and surface water and drainage management.

## 5.9 Review

The EHS Managers will be responsible for the effective implementation of this plan at the project site. EHS Officer is responsible for reviewing this plan annually or before that, if there are any amendments in the legal/statutory requirements at regional, State and/or National level.

### Amendments in Plan

The latest versions of the Documentation Format must be used at all times. This page needs to be updated whenever there is a change in the version number of the documents.

S. No.	Date	Document Version	Details of amendments





## 6 APPENDIX F: Environment Monitoring Framework

In pursuit of sustainable development, HFE is committed to conducting all business activities with minimal or negligible impacts on environmental and social aspects in the project area and its vicinity. To align with this commitment, an Environmental Monitoring Framework has been developed. This framework serves as a guide for HFE's businesses, ensuring the periodic measurement and monitoring of environmental and social parameters within the projects' sphere of influence. The applicability of this framework extends throughout the entire project cycle, encompassing all HFE businesses, including tasks contractually assigned to third-party agencies (contractors), which are expected to adhere to the principles outlined in this framework.

### 6.1 Scope & Objective

The goal of this framework is to guarantee thorough environmental monitoring of air and water, ensuring strict compliance with existing environmental legislation. It delineates the actions and measures essential for effective environmental monitoring, encompassing both accidental and intentional emissions to air, noise, water, and soil. The framework also prescribes specific control measures to be implemented by HFE and its contractors (including subcontractors) to achieve these environmental monitoring objectives.

### 6.2 Applicable Reference Framework

- National Ambient Air Quality Standards, CPCB 2009
- National Ambient Noise Standards
- IS10500:2012 Drinking Water Standards
- General Standard for Discharge
- Emission Limits for New Diesel Engines (up to 800 KW) for Generator Sets

### 6.3 Environment Monitoring Parameters

Contractors and subcontractors, responsible for monitoring and reporting to HFE, must compile the relevant monitoring data for the reporting period in the following tables. Please furnish the names and locations of all monitoring points and present the data in the specified units outlined in the following sections to facilitate comparison with the standards.

---

Project Name and Location:

---

Name of the Project Manager & Site safety/EHS  
Manager

---

Information on the Contractors and Sub  
Contractors

---

Brief Project Description:

---

Year of reporting period:

---

Project Stage	<ul style="list-style-type: none"><li>• Design</li><li>• Construction</li><li>• Expansion</li><li>• Operation</li><li>• Closure</li><li>• Other (<i>specify</i>)</li></ul>
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List any developments which have taken place in relation to the project over the reporting period. For example, has construction been started or

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completed, has new equipment been installed, or has production capacity increased?

### 6.3.1 Ambient Air Quality

The projects must enlist the services of reputed and NABL accredited/authorized laboratories to gather representative samples of ambient air at agreed-upon locations beyond the property boundary fence. The collected samples should be submitted for analysis, and the results are to be reported to HFE.

*Create sufficient sections in the table for each separate location by copying and pasting the sections.*

Sample Frequency (e.g., quarterly)	Ambient Air Quality Parameter	WHO Permissible Limits *	India Regulatory Limits and units *	Monitoring results (in comparable units) **
<b>Particulate Matter (PM<sub>10</sub>)</b>				
	<i>Annual arithmetic mean</i>	15 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>	µg/m <sup>3</sup>
	<i>Maximum 24-hour average</i>	45 µg/m <sup>3</sup>	100 µg/m <sup>3</sup>	µg/m <sup>3</sup>
<b>Particulate Matter (PM<sub>2.5</sub>)</b>				
	<i>Annual arithmetic mean</i>	5 µg/m <sup>3</sup>	40 µg/m <sup>3</sup>	µg/m <sup>3</sup>
	<i>Maximum 24-hour average</i>	15 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>	µg/m <sup>3</sup>
<b>Sulphur Dioxide (SO<sub>2</sub>)</b>				
	<i>Annual arithmetic mean</i>	µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	µg/m <sup>3</sup>
	<i>Maximum 24-hour average</i>	40 µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	µg/m <sup>3</sup>
<b>Oxides of Nitrogen (NO<sub>2</sub>)</b>				
	<i>Annual arithmetic mean</i>	10 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	µg/m <sup>3</sup>
	<i>Maximum 24-hour average</i>	25 µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	µg/m <sup>3</sup>
<b>Ozone (O<sub>3</sub>)</b>				
	<i>8-hour daily maximum</i>	100 µg/m <sup>3</sup>	100 µg/m <sup>3</sup>	µg/m <sup>3</sup>
	<i>8-hour mean, peak season</i>	80 µg/m <sup>3</sup>		µg/m <sup>3</sup>

\* Current standards as per the latest WHO norms for ambient air pollution 2021

\*\* Monitoring results should be accompanied by reports submitted by laboratory.

### 6.3.2 Point Air Emissions Monitoring

The projects must contract the services of reputed and NABL accredited/authorized laboratories to collect representative samples of point air emissions. These collected samples should be submitted for analysis, and the results are to be reported to HFE. For each air emission discharge point (e.g., DG set stacks), individual samples and individual reports are mandatory.

*Create sufficient sections in the table for each separate emission source by copying and pasting the sections.*

Sample Frequency (e.g., quarterly)	Air Emission Parameter	WHO Permissible limit	India Regulatory Limits and units	Monitoring results (in comparable units) **
	Particulate matter (PM <sub>10</sub> )	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	
	Sulphur Dioxide (SO <sub>2</sub> )	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	
	Oxides of Nitrogen (NO <sub>x</sub> )	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	
	Carbon Monoxide	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	
	Particulate matter (PM <sub>2.5</sub> )	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	
		mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	

\*\* Monitoring results should be accompanied by reports submitted by laboratory.

### 6.3.3 Ambient Noise

HFE projects are required to monitor ambient noise at an agreed number of representative receptors within and outside the property boundary and report the results to HFE. Ambient noise monitoring must take place while the project activities are in operation.

Sample Frequency (e.g., quarterly)	Ambient Noise Parameters	Permissible WHO limits	Indian Regulatory Limits and Units	Monitoring results (in comparable units)**
	Residential, institutional, educational receptors, Daytime (07:00-22:00 hours)	L <sub>eq</sub> (hourly), 55 dB(A)		dB(A)
	Residential, institutional, educational receptors, Nighttime (22:00-07:00 hours)	L <sub>eq</sub> (hourly), 45 dB(A)		dB(A)
	Industrial, commercial receptors Daytime (07:00-22:00 hours)	L <sub>eq</sub> (hourly), 70 dB(A)		dB(A)
	Industrial, commercial receptors, Nighttime (22:00-07:00 hours)	L <sub>eq</sub> (hourly), 70 dB(A)		dB(A)

\*\* Monitoring results should be accompanied by reports submitted by laboratory.

### 6.3.4 Surface Water Monitoring

Surface water monitoring is to be considered in case the project is depending on surface water and direct and indirect impacts are anticipated due to the project on the surface water resource. The company is required to collect representative samples of surface waters bodies in the vicinity at an agreed frequency, submit these samples for laboratory analysis and report the results. Individual samples and individual reports are required for each surface water body.

Sample Frequency (e.g., quarterly)	Water Quality Parameters to be analysed	Permissible limits (As per IS 2296 Inland surface Water class C)	Monitoring results	Units
	Colour	300 Max		Hazen Units
	pH	6.5- 8.5		-
	Turbidity	-		NTU

Sample Frequency (e.g., quarterly)	Water Quality Parameters to be analysed	Permissible limits (As per IS 2296 Inland surface Water class C)	Monitoring results	Units
	TSS	1500		mg/l
	Temperature	--		°C
	Electrical Conductivity	--		µS/cm
	Total Dissolved Solids	500		mg/l
	Salinity	--		mg/l
	Chloride	600		mg/l
	Copper(Cu)	1.5		mg/l
	Fluoride as F	1.5		mg/l
	Iron (Fe)	50		mg/l
	Oil & Grease	0.1		mg/l
	Nitrate	50		mg/l
	Phenolic Compound	0.005		mg/l
	COD	--		mg/l
	BOD (3 Days, 27°C)	3.0 Max		mg/l
	Sulphate	400		mg/l
	Phosphate	--		mg/l
	Total Alkalinity	200		mg/l
	Total Hardness	--		mg/l
	Dissolved Oxygen	4.0 Min		mg/l
	Cadmium (Cd)	0.01		mg/l
	Lead (Pb)	0.01		mg/l
	Mercury (Hg)	--		mg/l
	Arsenic(As)	0.2		mg/l
	Chromium(Cr)	0.05		mg/l
	Total Coliform	--		MPN/100ml
	Faecal Coliform	--		MPN/100ml

### 6.3.5 Ground Water Monitoring

Ground water monitoring is to be considered in case the project is depending on ground water and direct and indirect impacts are anticipated due to the project on the ground water resource. The company is required to collect representative samples of ground water in the vicinity at an agreed frequency, submit these samples for laboratory analysis and report the results. Individual samples and individual reports are required for ground water.

Sample Frequency (e.g., quarterly)	Ground Water Quality Parameters	WBG/IFC Permissible limits	Indian Regulatory Limits and Units *	Monitoring results in comparable units **
	pH	6-9		
	Biochemical oxygen demand (BOD <sub>5</sub> )	50 mg/L		mg/L
	Chemical oxygen demand (COD)	250 mg/L		mg/L
	Oil and grease	10 mg/L		mg/L
	Total suspended solids (TSS)	50 mg/L		mg/L
	Total coliform bacteria, Most Probable Number (MPN) or plate count (PC)	400 /100 ml		/100 ml
	Heavy Metals, Total	10 mg/L		mg/L
	(List other parameters)*	mg/L		mg/L

## 6.4 Monitoring

- The ESG MF Manager will routinely review monitoring reports to verify adherence to the Pollution Prevention Plan.
- Plant-level Site Manager/Supervisor will conduct regular assessments of plant and equipment to detect any leakages and confirm the overall condition of the plant.
- Periodic checks for visual evidence of pollution, contamination, hygiene, and safety will also be conducted within the plant premises and working areas.
- On-site meetings/inspections will be conducted as needed to validate the proper implementation of mitigation measures identified within HFE's environmental plans related to pollution control. These sessions will address any additional issues or measures relevant either before the commencement or during the works.
- Comprehensive records of all inspections and findings will be maintained for periodic review and discussion during regular meetings.

### 6.4.1 Frequency for Environmental Monitoring

Monitoring Type	Monitoring Frequency	No of Samples
Ambient Air Quality	Construction Phase: Quarterly Operation Phase: Annually	Minimum 3
Point Air Emission	Construction Phase: Quarterly Operation Phase: Annually	all air emission discharge
Ambient Noise	Construction Phase: Quarterly Operation Phase: Annually	Minimum 3
Water sample	Construction Phase: Quarterly Operation Phase: Annually	Can Vary on the number of ground water abstraction structures and surface water bodies in the vicinity

## 6.5 Record

HFE, at its plants, will maintain records, including but not limited to the following:

- Environmental monitoring reports
- Details of wastewater generated and treated
- Waste register documenting the generation and disposal of various waste categories at sites

These records will encompass all initial, final, and routine monitoring/inspections of construction and operation areas. They will be securely stored at an agreed-upon location within the plant and made available for both internal and external monitoring as needed. Record sheets will provide specifics such as the date, inspection location, frequency, findings, individuals notified, and identified actions, as required.

## 6.6 Training

- All employees, subcontractors, suppliers, and visitors will receive notification through induction regarding the pollution prevention requirements at the site.
- Site personnel and subcontractors will undergo educational sessions on relevant environmental management aspects corresponding to their assigned tasks through toolbox talks.
- Consultation meetings will encompass discussions on planned works, review of other plans, and consensus on necessary mitigation and pollution prevention measures. Agreed-upon measures from these meetings will be communicated to relevant stakeholders, including employees, contractors, subcontractors, suppliers, and others, through toolbox talks and formal communications (email/memo), especially when documentation is required for records, such as variations, auditing, and monitoring.
- HFE will hold the ultimate responsibility for overseeing and enforcing pollution prevention procedures to ensure the avoidance or mitigation of potential adverse impacts on human health or the environment from activities involving potential pollutants. Notably, pollution prevention procedures encompass various aspects, including but not limited to traffic, plant and materials management, air emission management, noise level management, and surface water and drainage management.

## 6.7 Review

The EHS Managers will be responsible for the effective implementation of this plan at the project site. EHS Officer is responsible for reviewing this plan annually or before that, if there are any amendments in the legal/statutory requirements at regional, State and/or National level.

### Amendments in Plan

The latest versions of the Documentation Format must be used at all times. This page needs to be updated whenever there is a change in the version number of the documents.

S. No.	Date	Document Version	Details of amendments

## 6.8 Applicable Standards

### 6.8.1 National Ambient Air Quality Standards, CPCB 2009

Pollutant	Time Weighted Avg.	Concentration in Ambient Air		
		Industrial, Residential, Rural & Other Areas	Ecologically Sensitive Areas (notified by Central Government)	
Sulphur dioxide (SO <sub>2</sub> ) mg/m <sup>3</sup>		Annual Average*	50	20
		24 Hours**	80	80
Oxides of Nitrogen (NO <sub>x</sub> ) mg/m <sup>3</sup>		Annual Average*	40	30
		24 Hours**	80	80
Particulate Matter (PM 10) mg/m <sup>3</sup>		Annual Average*	60	60
		24 Hours**	100	100
Particulate Matter (PM 2.5) mg/m <sup>3</sup>		Annual Average*	40	40
		24 Hours**	60	60
Ozone (O <sub>3</sub> ) mg/m <sup>3</sup>		8 Hours**	100	100
		1 Hour**	180	180
Lead (Pb) mg/m <sup>3</sup>		Annual Average*	0.50	0.50
		24 Hours**	1.0	1.0
Carbon monoxide (CO) mg/m <sup>3</sup>		8 Hours**	02	02
		1 Hour**	04	04
Ammonia (NH <sub>3</sub> ) mg/m <sup>3</sup>		Annual*	100	100
		24 Hours**	400	400
Benzene (C <sub>6</sub> H <sub>6</sub> ) mg/m <sup>3</sup>	Annual*	05	05	
Benzo(α)Pyrene-particulate phase ng/m <sup>3</sup>	Annual*	01	01	
Nickel (Ni) ng/m <sup>3</sup>	Annual*	20	20	
Arsenic (As) ng/m <sup>3</sup>	Annual*	06	06	

Note: \*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform interval.

\*\* 24 hourly/8 hourly/1 hourly monitored values, as applicable shall be complied with 98% of the time in a year. 2% of the time, it may exceed but not on two consecutive days of monitoring.

### 6.8.2 National Ambient Noise Standards

Area Code	Category of Area	Limits in dB(A) Leq	
		Day time*	Nighttime
A	Industrial Area	75	70
B	Commercial Area	65	55

Area Code	Category of Area	Limits in dB(A) Leq	
C	Residential Area	55	45
D	Silence Zone**	50	40

Note: \*Daytime is from 6 am to 10 pm, Night time is 10.00 pm to 6.00 am;

\*\*Silence zone is an area comprising not less than 100 meters around premises of hospitals, educational institutions, courts, religious places or any other area, which is declared as such by the competent authority. Use of vehicle horns, loud speakers and bursting of crackers are banned in these zones.

Source: Noise Pollution (Regulation and control) Rules, 2000

### 6.8.3 IS10500:2012 Drinking Water Standards

S.N	Substance/ Characteristics	Requirement (Acceptable limit)	Permissible limit in absence of alternate source
1.	Colour, Hazen units, max	5	15
2.	Odour	Unobjectionable	-
3.	Taste	Agreeable	-
4.	Turbidity, NTU, max	5	5
5.	pH value	6.5 - 8.5	No Relaxation
6.	Total hardness (as CaCO <sub>3</sub> ) mg/l, max	200	600
7.	Iron (as Fe) mg/l, max	0.3	No relaxation
8.	Chlorides (as Cl) mg/l, max	250	1000
9.	Free residual chlorine, mg/l, min	0.2	1
10.	Dissolved solids mg/l, max	500	2000
11.	Calcium (as Ca) mg/l, max	75	200
12.	Magnesium (as Mg) mg/l, max	30	100
13.	Copper (as Cu) mg/l, max	0.05	1.5
14.	Manganese (as Mn) mg/l, max	0.1	0.3
15.	Sulphate (as SO <sub>4</sub> ) mg/l, max	200	400
16.	Nitrate (as NO <sub>3</sub> ) mg/l, max	45	No relaxation
17.	Fluoride (as F) mg/l, max	1.0	1.5
18.	Phenolic compounds (as C <sub>6</sub> H <sub>6</sub> OH) mg/l, max	0.001	0.002
19.	Mercury (as Hg) mg/l, max	0.001	No relaxation
20.	Cadmium (as Cd) mg/l, max	0.003	No relaxation
21.	Selenium (as Se) mg/l, max	0.01	No relaxation
22.	Arsenic (as as) mg/l, max	0.01	0.05
23.	Cyanide (as CN) mg/l, max	0.05	No relaxation



S.N	Substance/ Characteristics	Requirement (Acceptable limit)	Permissible limit in absence of alternate source
24.	Lead (as Pb) mg/l, max	0.01	No relaxation
25.	Zinc (as Zn) mg/l, max	5	15
26.	Anionic detergents (as MBAS) mg/l, max	0.2	1.0
27.	Total Chromium (as Cr) mg/l, max	0.05	No relaxation
28.	Polynuclear aromatic hydrocarbons (as PAH) g/l, max	0.0001	No relaxation
29.	Mineral Oil mg/l, max	0.5	No relaxation
30.	Pesticides mg/l, max	Absent	0.001
31.	Radioactive materials:	0.1	
	a) Alpha emitters Bq/l, max	1.0	No relaxation
	b) Beta emitters pci/l, max		No relaxation
32.	Total Alkalinity (as CaCO <sub>3</sub> ), mg/l, max	200	600
33.	Aluminium (as Al) mg/l, max	0.03	0.2
34.	Boron, mg/l, max	0.5	1.0
35.	Ammonia (as total ammonia N). mg/l, max	0.5	No relaxation
36.	Barium (as Ba), mg/l, max	0.7	No relaxation
37.	Chloramines (as Cl <sub>2</sub> ), mg/l, max	4.0	No relaxation
38.	Silver (as Ag), mg/l, max	0.1	No relaxation
39.	Sulphide (as H <sub>2</sub> S), mg/l, max	0.05	No relaxation
40.	Molybdenum (as Mo), mg/l, max	0.07	No relaxation
41.	Nickel (as Ni), mg/l, max	0.02	No relaxation
42.	Polychlorinated biphenyls, mg/l, max	0.0005	No relaxation
43.	Trilomethanes:	0.1	No relaxation
	a) Bromoform, mg/l, max	0.1	No relaxation
	b) Dibromochloromethane, mg/l, max	0.06	No relaxation
	c) Bromodichloromethane, mg/l, max	0.2	No relaxation
	d) Chloroform, mg/l, max		
Bacteriological Analysis			
1.	All water intended for drinking: a) E. coli or thermotolerant coliform bacteria	Shall not be detectable in any 100 ml sample	-
2.	Treated water entering the distribution system: a) E. coli or thermotolerant coliform bacteria b) Total coliform bacteria	Shall not be detectable in any 100 ml sample. Shall not be detectable in any 100 ml sample.	-
3.	Treated water in the distribution system: a) E. coli or thermotolerant coliform bacteria b) Total coliform bacteria	Shall not be detectable in any 100 ml sample. Shall not be detectable in any 100 ml sample.	-

#### 6.8.4 General Standard for Discharge

S. N	Parameter	Standards		
		Inland surface water	Public sewers	Land for Irrigation
1.	Colour and odour	Refer to Note 1	-	Refer to Note 1
2	Suspended solids mg/l, max.	100	600	200
3	Particle size of suspended solids	Shall 850 micron IS sieve	-	-
4	PH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
5	Temperature	Shall not exceed 50 C above the receiving water temperature	-	-
6	Oil and grease, mg/l max,	10	20	10
7	Total residual chlorine, mg/l max	1.0	-	-
8	Ammonical nitrogen (as N), mg/l max.	50	50	-
9	Total Kjeldahl nitrogen (as N); mg/l max	100	-	-
10	Free ammonia (as NH <sub>3</sub> ), mg/l max	5.0	-	-
11	Biochemical oxygen demand (3 days at 270 C), mg/l max	30	350	100
12	Chemical oxygen demand, mg/l max	250	-	-
13	Arsenic (as as) mg/l, max	0.2	0.2	0.2
14	Mercury (As Hg) mg/l max.	0.01	0.01	-
15	Lead (as Pb) mg/l, max	0.1	1.0	-
16	Cadmium (as Cd) mg/l, max	2.0	1.0	-
17	Hexavalent chromium (as Cr +6) mg/1 max	0.1	2.0	-
18	Total chromium (as Cr) mg/1 max	2.0	2.0	-
19	Copper (as Cu) mg/1, max	3.0	3.0	-
20	Zinc (as Zn)	5.0	15	-
21	Selenium (as Se)	0.05	0.05	-
22	Nickel (as Ni) mg/1,max	3.0	3.0	-
23	Cyanide (as CN) mg/1,max	0.2	2.0	0.2
24	Fluoride (as F) mg/1,max	2.0	15	-
25	Dissolved phosphates (as P) mg/1,max	5.0	-	-
26	Sulphide (as S) mg/1,max	2.0	-	-
27	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH) mg/1,max	1.0	5.0	-

S. N	Parameter	Standards		
28	Radioactive materials: (a) Alpha emitters micro curie mg/1,max (b) Beta emitters micro curie mg/1	10-7	10-7	10-8
		10-6	10-6	10--7
29	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
30	Manganese	2 mg/1	2 mg/1	-
31	Iron (as Fe)	3mg/1	3mg/1	-
32	Vanadium (as V)	0.2 mg/1	0.2 mg/1	-
33	Nitrate Nitrogen	10 mg/1	-	-

Source: as per G.S.R 422 (E) dated 19.05.1993 and G.S.R 801 (E) dated 31.12.1993 issued under the provisions of E (P) Act 1986.

### 6.8.5 Emission Limits for New Diesel Engines (up to 800 KW) for Generator Sets

Emission standards for diesel engines (engine rating more than 0.8 MW (800 KW)) for power plant, generator set application and other requirements is as follows:

Parameter	Area Category	Total engine rating of the plant (includes existing as well as new generator sets)	Generator sets commissioning date		
			Before 1.7.2003	Between 1.7.2003 and 1.7.2005	On or after 1.7.2005
NOx (as NO <sub>2</sub> ) (AT 15% O <sub>2</sub> ), dry basis, in ppmv	A	Upto 75 MW	1100	970	710
	B	Upto 150 MW			
	A	More then 75 MW	1100	710	360
	B	More then 150 MW			
NMHC (as C)(at 15% O <sub>2</sub> ), mg/Nm <sup>3</sup>	Both A and B		150	100	
PM (at 15% O <sub>2</sub> ), mg/Nm <sup>3</sup>	Diesel Fuels- HSD & LDO	Both A and B	75	75	
	Furnace Oils- LSHS & FO	Both A and B	150	100	
CO (at 15% O <sub>2</sub> ), mg/Nm <sup>3</sup>	Both A and B		150	150	
Sulphur Content in fuel	A		< 2%		
	B		< 4%		
Fuel specification	For A only	Up to 5MW	Only Diesel fuels (HSD, LDO) shall be used.		
Stack height (for generator sets commissioned after 1.7.2003)	Stack height shall be maximum of the following, in meter: (i) $14 Q^{0.3}$ , Q= Total SO <sub>2</sub> emission from the plant in kg/hr. (ii) Minimum 6 m. above the building where generator set is installed. (iii) 30 m.				

## 7 APPENDIX G: Biodiversity Conservation & Management

This Biodiversity Conservation & Management framework includes measures for conserving the biodiversity in the project area. HFE Pvt. Ltd. (HFE) will follow the given framework for protecting and conserving biodiversity in the project area throughout the project lifecycle.

### 7.1 Framework Scope

- Outlines actions and measures necessary for conservation and management of biodiversity.
- Covers plan of action according to national and international standards for protection of biodiversity in Project locations.
- Specific control and protection measures to be implemented by HFE and its contractors (as well as subcontractors), to achieve defined objectives.

### 7.2 Objective

The objectives of the procedure are enlisted here as,

- To obtain a clear statement, supported by necessary analysis and maps, on the current extent of modified, natural habitat and/or critical habitat (as per IFC PS6 paragraphs 11 and 13). Special attention should be paid to areas within the Project site premises and closed proximity.
- To obtain a clear statement on the presence of key biodiversity values related to the critical habitat, their location, status, and condition, and as far as possible, information on areas of habitat, key resources, and critical areas that support the values.
- To identify and assess the specific risks and impact that key biodiversity values and the critical habitat are exposed to due to project constructions and operations; and
- To prescribe recommendations for management and monitoring measures required for compliance with IFC PS6 requirements.

### 7.3 Applicable Reference Framework

#### National Level Standards

1. Forest Act, 1927
2. Forest (Conservation) Act, 1980
3. Wildlife Protection Act, 1972
4. Wetland (Conservation and Management) Rules 2017
5. Indian Forest (Amendment) Ordinance, 2017
6. Indian Fisheries Act, 1897
7. River Boards Act, 1956
8. Coastal Regulation Zone Notification, 1991
9. Biological Diversity Act, 2002

#### International Standards

IFC Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.

### 7.4 Risk and Control Measures

The potential risks and measures to control the adverse impact of project activities for a Solar Power Project includes:

### 7.4.1 Construction Phase

### 7.4.2 Habitat Modification and Loss

- During excessive vegetation clearance exercise the important sites such as avifauna and other wildlife's roosting and breeding sites, etc. should be avoided
- Vegetation clearance activities should be restricted within the project site / WTG locations and transmission towers
- Vegetation disturbance, clearance and construction activities should be restricted to the project activity area, labour camp and storage areas
- Unnecessary disturbance of neighbouring vegetation due to off-road vehicular movement, fuel wood procurement, needless expansion of labour camp and destruction of floral resources should be prohibited
- There should be a ban on the use of woody plants as kitchen fuel, collected from the nearby areas
- Areas around the natural habitats and water sources should be avoided to the extent possible during the planning of access/internal roads, storage areas, labour camps and supplementary facilities
- Vegetation for the project surrounding area should be returned to the pre-construction state, after completion of construction activities
- Topsoil that is disturbed should be properly remediated, reclaimed, and restored to minimize impact on the community and Biodiversity; and
- Simultaneous revegetation using native species in and around the Project area (as per the land availability) should be practiced and promoted (specifically for areas that are determined to have loose or unstable soil to avoid erosion).

### 7.4.3 Increased Anthropogenic Activities

- Construction and transportation activities should be avoided at night (6:00 pm to 6:00 am) and should particularly avoid high activity areas like locations near forest or water bodies during dawn (6:00 am to 7:30 am) and dusk (5:00 pm to 6:30 pm)
- Areas with pre-existing burrows or ground roosting sites of birds should be avoided when possible
- Temporary barriers should be installed on excavated areas
- Hazardous materials should not be stored near natural drainage channels
- Efforts should be made to minimize construction noise and the use of noise barriers should be considered for areas with high noise levels
- Waste materials should be cleared in a timely manner and the use of artificial lights should be minimized so as to not attract wildlife
- Good housekeeping should be followed for construction activities, waste packaging material should be properly disposed
- Proper sanitation facilities should be provided at the labour camps
- Labour movement should be restricted between construction camps and construction sites
- Vehicle movement should be restricted in areas and times where wildlife is most active
- Anti-poaching, trapping, and hunting policy among employees and contractors should be strictly enforced
- Frequent patrols of the project's perimeter will be conducted to deter the entry and accidental entrapment of large mammals, such as Chinkara, etc.; and
- General awareness regarding fauna should be enhanced through trainings, posters, etc. among the staff and laborers.

#### 7.4.4 Operation Phase

#### 7.4.5 Collision and Electrocutation (from transmission infrastructure)

- Cross arms transmission tower, suspended insulators, perch rejecters and insulated jump connectors (at least 60 cm in length) should be utilized.
- Frequent checking of the transmission towers to avoid bird nesting.
- Bird carcasses monitoring should be conducted along the TL route to record the incident of collision and/or electrocution.
- If the carcass of an ecological sensitive species reported during the monitoring, a separate bird & bat survey should be conducted.
- Disposal of carcasses and other waste near project components (substation and power lines) should be restricted; and carcasses observed around project components should be immediately removed to avoid attracting vultures and raptors; and
- Marking overhead cables using bird flight diverters as per the defined Government norms in the areas of high bird concentrations of species vulnerable to collision

#### 7.4.6 Collision with rotating turbine blade

- Inter-turbine distance should be large enough that birds can avoid turbine blades, by utilizing their minimal energy.
- Siting of WTGs near important habitat features such as water bodies, tree clusters, etc should be avoided.
- WTGs should be sited in the areas that could be visible from a manoeuvrable distance for flying species and they shouldn't be located near sudden changes of elevation, large trees or be blocked by any other manmade/natural structure.
- The tower and blade tips should be marked with orange colour, for better visibility of the WTGs.
- Wind turbine generators should be properly maintained to ensure that turbine blade speeds are regulated, and blade throws are avoided.
- Restrictions should be imposed so that dead carcasses are not disposed near the WTG areas so that the vultures are not attracted.
- Bird carcass monitoring should be commissioned in operation and maintenance phase, in which all bird carcasses found in the wind plant should be recorded and photographed with details about the distance from the closest wind turbine generator and the name of the wind turbine generator for at least two years; and
- If there is a significant activity of migratory birds in the area, at least one time bird survey in migratory season will be conducted.

#### 7.4.7 Human-wildlife conflicts

- Fencing around the project compound should be designed in such a way to allow the movement of small mammals and reptiles;
- Regular checking of the boundary wall to avoid any space for the entrance of larger mammals and reptiles into project compound;
- Good housekeeping practices in the project compound could help to reduce the faunal attraction;
- An anti-Poaching practice should be established with clear and Dos and Don'ts\*;
- Training on wildlife encounter situations and the dos and don'ts of dealing with these situations should be delivered to all the project officials, workers and supervisors.

**\*Anti-Poaching practice**

HFE should ensure implement of anti-poaching practice at all its Sites/ Plants. Staff (both direct and indirect) working at Sites during construction as well as operation phase. Within it, Dos and Don'ts will include but not limited to as cited below:

Dos	Don'ts
Labour movement should be restricted between construction camps and construction sites;	Unnecessary movement of labourers and other staff in the surrounding vegetation during dawn (6:00 am to 7:30 am) and dusk (5:00 pm to 6:30 pm);
Proper availability of fuel for the labour camp kitchen	Unnecessary disturbance of neighbouring vegetation
Strict prohibition on use of fuel wood and shrubs from nearby areas as kitchen fuel;	Fuel wood procurement from the surrounding forest / vegetation
Arrangement of food (veg./non veg.) as per the habit / preference of the labourers;	Establishment of labour camps close to pre-existing burrows or ground roosting sites
General awareness regarding fauna should be enhanced through trainings, posters, etc. among the staff and labourers;	
Establish standards procedures for case reporting	
Mandatory minimum penalties for poaching	
Training	

To reduce the possible risks because of solar / wind power projects during the construction and operational phase following awareness and training should be conducted,

- Project staff, contractors, and laborers should undergo general awareness and training sessions regarding the strict enforcement of the anti-poaching, trapping, and hunting policy.
- Training should be conducted on bird carcass monitoring around the Wind Turbine Generators (WTGs) and along Transmission Line (TL) routes to monitor the incident of collision and/or electrocution.

## 7.5 Risk Assessment

If the E&S screening of the project and further E&S studies shows that the Project falls in eco-sensitive areas , biodiversity risk assessment to be undertaken through qualified consultant and management measures will be implemented on site to reduce impacts of the project on biodiversity of the area. Scope of work for the report to include:

S.N.	Activity	Details
1	DESKTOP SCOPING AND REVIEW	
	Review existing literature	To review literature such as: (i) existing environmental studies, scientific literature or any other type of pre-existing biodiversity assessments available for the project area and/or adjacent areas (e.g., Environmental and Social Impact Assessment, HCV Assessment); (ii) national or regional plans (e.g., Strategic Environmental Assessments, National Biodiversity Strategies and Action Plans); (iii) existing conservation programs or initiatives in the area and its surroundings (e.g. local NGO projects).
	Identify and mark the Area of Interest	To identify and mark the area near the project site that holds biodiversity values or a critical habitat that can be impacted by the activities and the operations of the project.
	Review existing data for the Area of Interest	To review data for the area of interest (e.g., via the Integrated Biodiversity Assessment Tool, and associated databases on the identified priority species, key biodiversity areas or protected areas) and define in detail the occurring critical habitat values (PS6 para. 16),



S.N.	Activity	Details
		and internationally recognized areas (PS6 para. 20). Screen for any potential invasive species in the area of interest and list out tree species to be felled for land clearing.
	Identify relevant stakeholders	To identify the stakeholders associated within the area of interest and potential biodiversity values. For e.g., local communities and organizations or institutions that represent them, environmental or social organizations, academic or research organizations, government bodies, and other commercial users of potentially impacted natural resources.
2	STAKEHOLDER CONSULTATIONS	
		To conduct consultation with domain experts with relevant experiences or knowledge of the species, the region/project site, and its biodiversity values to fill any information gaps and understand the area of interest in terms of the occurrence of critical habitat values and any other biodiversity values associated with the area of interest.
3	CRITICAL HABITAT IDENTIFICATION	
	Mapping of habitats	To map all major habitat types using existing data and maps and Map extent of IFC defined modified, natural, and critical habitat in the area of interest.
	Assigning values to habitats	Provide clear statement, with justification, defining the critical habitat values based on information collected in Activity 1. Determination must be justified according to definitions and thresholds described in PS6 Guidance Note 6 (GN66, Step 3: Critical Habitat Determination).
4	IDENTIFICATION AND ASSESSMENT OF PROJECT IMPACTS ON CRITICAL HABITAT VALUES	
		Based on review of various studies, assessments and activities proposed as part of project and operations identify and assess the key risks and impacts to the critical habitat value.
5	RECOMMEND MITIGATION AND MANAGEMENT MEASURES	
		To recommend mitigation and management measures that explicitly address project risks and impacts to critical habitat values. This must be based on the mitigation hierarchy (avoid, minimize, restore, and offset). Mitigation and management measures should be designed to achieve compliance with PS6. Recommendations should include assessment on the adequacy of existing activities to address risk and impacts to critical habitat values.
6	MONITORING AND ASSESSMENT	
		To recommend monitoring measures for biodiversity and critical habitat values. This should include consultation with relevant experts and suggestions on potential capacity needs.

The report is expected to encompass the following information, as relevant and in accordance with local requirements:

- Mapped area of interest, including boundaries of project area used for the assessment.
- Mapped extent of areas meeting IFC definitions of modified, natural habitat and critical habitat.
- List and maps of known or potentially occurring biodiversity values, if any.
- List of tree species to be felled and compensation plans (adhere to local compliances).
- Prioritized list and with map of sampling sites for proposed or implemented field surveys.
- Where field surveys are conducted, a full description of methods used, and sampling effort must be provided. This includes dates, duration, location, , and techniques used.
- Interaction with legally protected areas and internationally recognized areas (Important Bird and Biodiversity Area, Key Biodiversity Area, Biosphere Reserves, & Natural World Heritage Sites), including maps.
- Interaction with global and national conservation priorities or initiatives, including maps.

- Interaction with potentially sensitive habitats (e.g., globally, or regionally unique or threatened ecosystems).
- Findings regarding human settlements and infrastructure, agricultural areas, social context (ethnicity, major social trends, and land use activities), history of land use and development trends, including future (e.g., spatial planning maps, development initiatives and existing/proposed commercial exploitation and production licenses).
- Findings regarding invasive species.
- Findings, including maps, of exploitation of any kind (especially clearance) prior to the assessment.
- Recommended mitigation and management measures for existing and potential risks and impacts.
- Recommended monitoring measures.
- List of names, organizational affiliation, contact details and meeting dates for all stakeholders interviewed or consulted.
- List composition and qualifications of the assessment team, and their relevant expertise on the biodiversity and critical habitat values.
- List of all data sources reviewed.

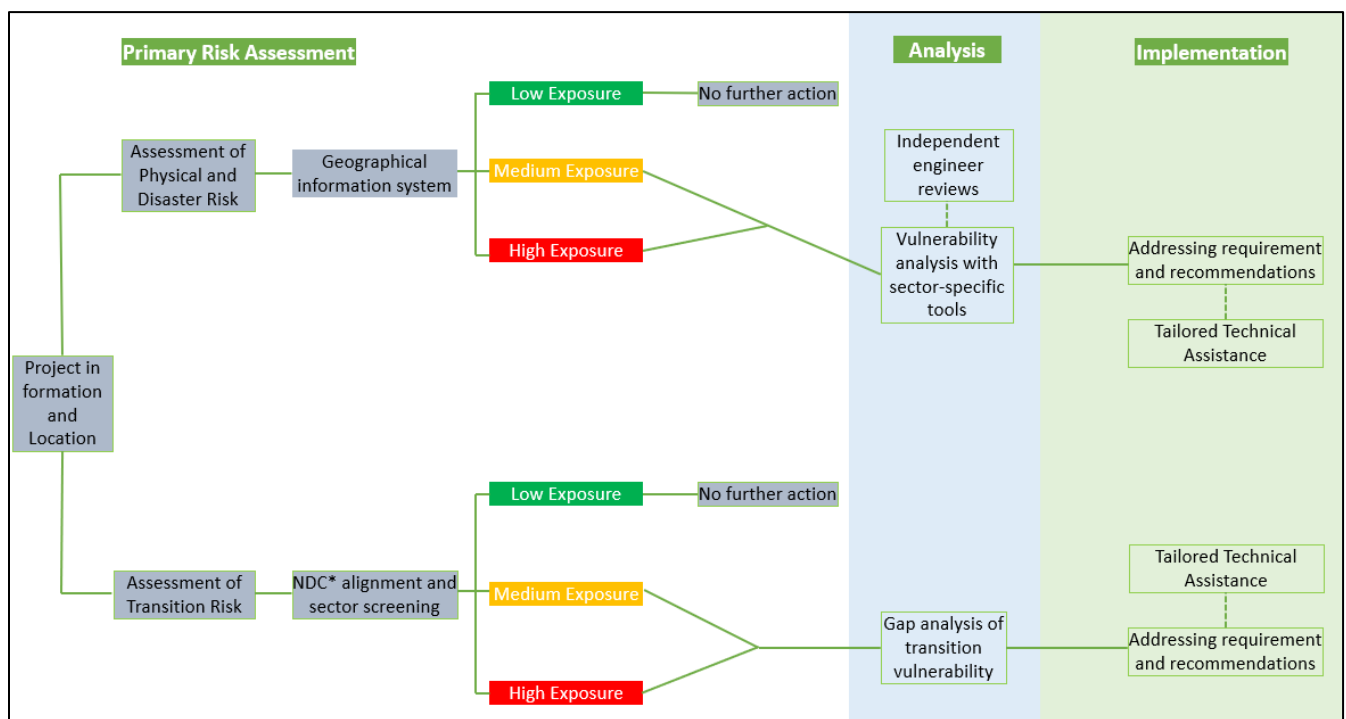
This report should provide sufficient information to inform development of a Biodiversity Action Plan for the project Influence area.

## 8 APPENDIX H: Climate Risk Assessment

Extreme weather and climate change threaten to damage our premises and interfere with the systems we rely on for day-to-day business continuity. Interruptions to transport, power and communications infrastructure may disrupt processes. Staff working conditions may become unacceptable. Equipment and stock may be damaged. Ultimately these impacts will have reputational and financial consequences.

To help avoid the costs and consequences of extreme weather and climate change we have developed this plan. Developing and implementing our plan allows us to understand our vulnerability to current and future climate, to identify and assess the risks and opportunities posed to our business, and to take action to manage these risks and exploit opportunities.

Climate Risk Management (CRM) will be viewed as a separate process but rather as an integral part of program design and implementation. The climate risk management plan levels as presented below.



Note:

\* Nationally Determined Contributions.

\*\* Undertake advisory services from third party consultants to develop solutions and make recommendations on reducing GHG emissions and adapting to climate change.

### Physical Hazard Exposure Classification

**Low:** No significant direct (acute or chronic) geographical exposure

**Medium:** Moderate exposure to respective hazards

**High:** High exposure to respective hazards

## Transition Hazard Exposure Classification

**Low:** No significant exposure (Country, sector or asset life span)

**Medium:** Moderate exposure in two or more areas

**High:** High exposure in two or more areas

**Physical risks** are event-driven (acute) or longer-term shifts (chronic) in climate patterns.

**Acute risks** include extreme weather events, such as hurricanes or floods, while chronic risks refer to issues such as sea level rise or heat waves.

**Transition risks** relate to the financial and reputational risks associated with society transitioning to a lowcarbon economy. They refer to policy, legal, technology and market changes resulting from climate change mitigation and adaptation requirements. Carbon pricing regulations or changing consumer preferences are examples of such risks.

### 8.1 General Implications of Climate Change

Climate change is causing more frequent and more severe extreme weather events, increasing the likelihood of critical coping thresholds being exceeded. HFE's projects may suffer infrastructure damage, project delays and constraints on water supplies, lost production, power supply transmission disruption and variability in energy demand. The health and safety of employees, business reputation, violation of regulatory standards, social license to operate and financial disruptions may become more prevalent.

Figure below presents the general risks on energy projects as a result of climate change. Anticipated impacts of these climate changes were reported to be flooding, damage to building construction, disruption of energy transmission, increased insurance premiums, higher operating costs, early retirement of assets, decreased production capacity, and high variability in availability of water.



**General Implications of Climate Change**

## 8.2 Preliminary Risk Screening

A Climate Risk Assessment screening process provides a foundation for understanding the potential impacts of climate change and is a crucial step in developing resilient strategies and policies for the future.

Screening is a process for identifying short and long-term climate and disaster risks to build resilience in development projects, policies, and programs. Risk identification and proactively incorporating resilience measures – at an early stage of project design – can help projects achieve their development objectives.

### 8.2.1 Scope

- **Defining the Boundaries:** Begin by clearly defining the boundaries of the assessment. This includes specifying the geographic area, the time horizon (e.g., short-term, medium-term, long-term), and the assets or systems under consideration (e.g., infrastructure, ecosystems, financial investments).
- **Identification of Climate Hazards:** Identify the climate hazards relevant to the area or assets being assessed. Common climate hazards include extreme temperatures, floods, droughts, sea-level rise, storms, and wildfires.
- **Asset Inventory:** Create an inventory of the assets, resources, and systems within the defined scope. This may include physical infrastructure, natural resources, human populations, and economic activities.
- **Climate Data Collection:** Gather historical climate data for the area of interest. This data should include temperature trends, precipitation patterns, sea-level rise projections, and other relevant climate variables. Projections of future climate conditions are also essential.
- **Vulnerability Assessment:** Assess the vulnerability of the identified assets and systems to the selected climate hazards. This involves understanding the exposure, sensitivity, and adaptive capacity of these assets. Exposure refers to the extent to which assets are likely to be affected by climate hazards. Sensitivity refers to how much damage or disruption an asset may experience if exposed. Adaptive capacity relates to the ability of the asset or system to cope with or adapt to climate-related changes.

## 8.2.2 Approach for the Screening Process:

- **Data Collection and Compilation**
  - Gather relevant climate data, including historical records, climate models, and future projections.
  - Collect data on assets, infrastructure, and operations, including their location, value, and importance to the organization.
  - Acquire information on current risk management practices and existing adaptation measures.
- **Vulnerability Assessment**
  - Evaluate the sensitivity of assets and systems to climate hazards. Determine which are most vulnerable.
  - Assess the exposure of assets to potential climate impacts, considering their location and characteristics.
  - Analyze the adaptive capacity of the organization, which includes its ability to absorb and respond to climate-related shocks.
- **Risk Assessment**
  - Combine vulnerability and exposure assessments to determine the overall climate risk for each asset or system.
  - Consider both physical risks (e.g., damage to infrastructure) and transition risks (e.g., regulatory changes, market shifts).
  - Quantify the magnitude and likelihood of risks and prioritize them based on their potential impact.
- **Scenario Analysis**
  - Develop multiple climate scenarios to account for various future climate outcomes.
  - Assess how different scenarios would impact the organization's assets and operations.
  - Use scenarios to test the effectiveness of different adaptation strategies.
- **Adaptation Planning**
  - Develop adaptation strategies and measures to mitigate identified risks.
  - Consider both structural solutions (e.g., building resilience infrastructure) and non-structural approaches (e.g., changing business processes).
  - Evaluate the cost-effectiveness and feasibility of proposed adaptation options
- **Reporting and Communication**
  - Prepare a comprehensive CRA report that summarizes the findings, including risk assessments, vulnerabilities, and adaptation plans.
  - Communicate the results to internal and external stakeholders, making the information accessible and actionable.
- **Monitoring and Review**
  - Establish a system for ongoing monitoring and review of climate risks and adaptation measures.
  - Update the CRA periodically to account for changing climate conditions and new information.

The screening process for a Climate Risk Assessment should be tailored to the specific needs and goals of the organization or project, taking into account the nature of the assets, the geographical context, and the level of available data and resources. Additionally, it should align with international standards and best practices, such as those outlined by the Task Force on Climate-related Financial Disclosures (TCFD) and relevant regulatory requirements.

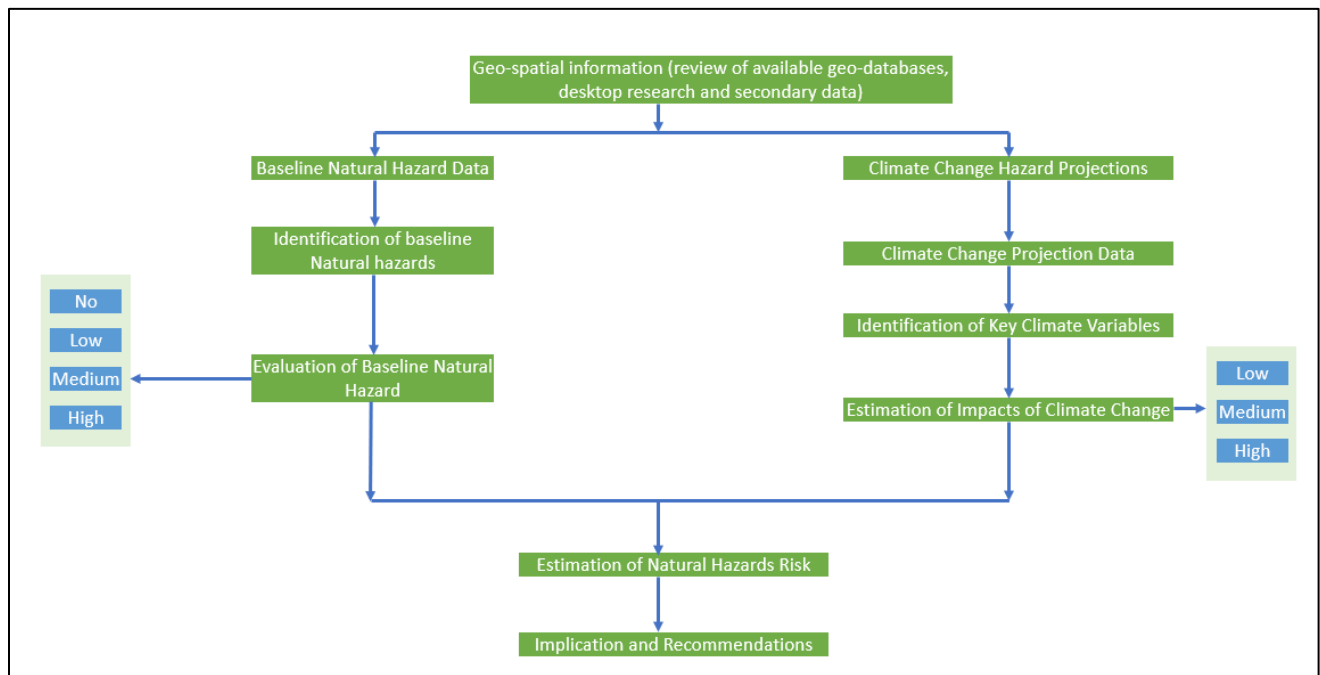
## 8.3 Methodology for Assessment for Physical Risk (Natural Hazard and Climate Change Impact Assessment)

The assessment in general should start with the collection of geospatial information for the Study Area to be assessed. Based on the geospatial information, baseline natural hazards and the climate change projection data to

be collected and collated. The assessment may also utilize data sources which are readily available and are open source. A brief description of the various steps performed for the study are provided below.

- **The first step** should focus on evaluation of historical data on natural hazards in the area of interest to evaluate the existence and magnitude of identified natural hazards. The assessment can be performed qualitatively based on the availability of historical data. The potential impact of each natural hazard is to be evaluated on a scale of three levels categorized as Low, Medium, and High. The hazard categorisation is to be on the potential impact on built and natural environment considering intensity/ magnitude, and/or frequency of the hazard in the region.
- **The second step** should constitute evaluation of climate change projections to assess the extent of changes in climatic variables such as precipitation, and temperature. This will provide information on any significant changes in temperature and precipitation in the upstream of the project site which may have impact on the Site operations in future.
- **The third step** should involve the evaluation of baseline risk from each natural hazard; the outputs from climate change projections to be overlaid qualitatively on the baseline conditions for each hazard to categorize the climate change risk using only the hazard intensity.

The Figure below provides the framework for the assessment for the extraction of historical and projected data, evaluation of baseline natural hazards and superimposition of climate change projections. The final output should be in terms of a semi-quantitative hazard matrix which presents cumulative hazard levels for each study area under baseline and climate change scenario. Based on this outcome, the third party consultant to evaluate the high-level implications and the corresponding recommendations for the project components.



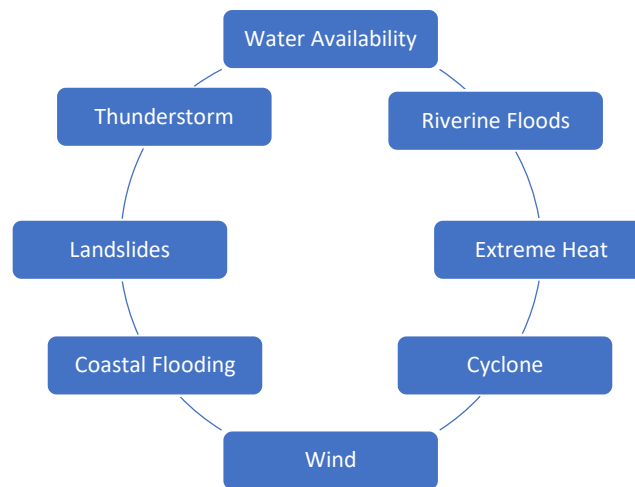
In short, the process of assessment of physical risks involves the evaluation of likely impacts from climate change projections on the existing baseline risks to inform the business units on potential future risks



### 8.3.1 Baseline Natural Hazard Evaluation

#### Use of Global and National Databases

Various natural hazards as presented below are to be evaluated based on review of recognised global and national level databases/literature in this assessment. Hazards to be evaluated



Various data sources that can be referred for the assepresent assessment for evaluation of baseline natural hazard are presented in the table below:

**Table 7 Data Sources that can be referred for Natural Hazard Evaluation**

Natural Hazard	Factors Assessed	Data Sources
<b>Water Availability</b>	Water Stress, Seasonal Variability	Hofste, R., S. Kuzma, S. Walker, E.H. Sutanudjaja, M.F.P. Bierkens, M.J.M. Kuijper, M. Faneca Sanchez, R. Van Beek, Y. Wada, S.G. Rodríguez and P. Rei. 2019. "Aqueduct 3.0: Updated DecisionRelevant Global Water Risk Indicators." Technical Note. Accessed 9 June, 2020. Available at: <a href="https://www.wri.org/publication/aqueduct-30">https://www.wri.org/publication/aqueduct-30</a>
<b>Flood</b>		WRI-Aqueduct Flood Tool- Ward, Philip J., Hessel C. Winsemius, Samantha Kuzma, Marc F.P. Bierkens, Arno Bouwman, Hans De Moel, Andrés Díaz Loaiza, Dirk Eilander, Johanna Enghardt, Gilles Erkens, Eskedar Tafete Gebremedhin, Charles Iceland, Henk Kooi, Willem



Ligtvoet, Sanne Muis, Paolo Scussolini, Edwin H. Sutanudjaja, Rens Van Beek, Bas Van Bommel, Jolien Van Huijstee, Frank Van Rijn, Bregje Van Wesenbeeck, Deepak Vatvani, Martin Verlaan, Timothy Tiggeloven and Tianyi Luo. 2020, Aqueduct Floods. Available at: <https://www.wri.org/resources/data-sets/aqueduct-floods-hazard-maps>

Flood Hazard Map of India- Building Material and Technology Promotion Council (BMTPC)

Available at: <https://bmtpc.org/DataFiles/CMS/file/VAI2019/flood.html>

**Extreme Heat**      Extreme heat hazard level      ThinkHazard. 2020.

**Cyclone**              Cyclone Tracks      NOAA Historical Hurricane Tracks

Available at:

<https://coast.noaa.gov/hurricanes/#map=6.07/27.032/70.913&search=e yJzZW FyY2hTdHJpbmciOiJKYWZlYWxtZXIsIFJhamFzdGhhbiwgSW5kaWEiLCJzZW FyY2hUeXBlijoiz2VvY29kZWQiLCJvc21JRCl6ljE3OTg4NDciLCJjYXRIZ 29yaWVzljpbkg1iwiSDQiLCJIMyIsIkgYliwiSDEiLCJlUyIsIiREliwiRVQiXSWie WVhcnMiOlt dLCJtb250aHMiOlt dLCJlbnNvIjpXSwicHJlc3N1cmUiOncmF uZ2UiOlswLDExNTBdLCJpbmNsdWRlVW5rbm93blByZXNzdXJlIj p0cnVl fSw iYnVmZmVyVW5pdCI6WyJNaWxlcyJdLCJzb3J0U2VsZWNOaW9ulj p7InZhb HVlijoieWVhcnNfbmV3ZXNOliwibGFiZWwiOiJZZWFyIChOZXdlc3QpInOslm FwcGx5VG9BT0kiOnRydWUsImlzU3RvcmlMYWJlbnHNWaxNpYmxlljp0cn VlfQ==>

Cyclone Intensity Maps: UNEP, 2013. Global Risk Data Platform: Tropical cyclones wind speed buffers footprint 1970-2009. Accessed 9 June 2020. Available at: <https://preview.grid.unep.ch/index.php?preview=data&events=cyclones &evcat=4&lang=eng>

**Wind Speed**                      Average Wind Speed Map of the World: DTU (Technical University of Denmark). 2019. Global Wind Atlas 2.0. Accessed 9 June 2020. Available at: <https://globalwindatlas.info>

Wind Hazard Map- Building Material and Technology Promotion Council (BMTPC)

**Thunderstorm**

Thunderstorm Incidence map

Building Material and Technology Promotion Council (BMTPC)

Available at:

<https://bmtpc.org/DataFiles/CMS/file/VAI2019/th.html>**Table 8 Categorization of Natural Hazards**

Natural Hazard	Categorization
<b>Water Stress</b>	Low: <10%
<b>Based on ratio of total water withdrawal to available renewable water resources (surface and groundwater)</b>	Low-Medium: 10-20%
	Medium-High: 20-40%
	High: 40-80%
	Extremely High: >80%
<b>Seasonal Variability – Water Availability</b>	Low: <0.33
<i>Based on coefficient of variability as ratio of standard deviation of the annual available water and the annual mean available water during the period of 1960-2014</i>	Low-Medium: 0.33-0.66
	Medium-High: 0.66-1
	High: 1-1.33
	Extremely High: >1.33
<b>WRI-Aqueduct Flood tool</b>	Low: <0.5 m
	Medium: 0.5-1.5 m
	High: >1.5 m
<b>Extreme Heat</b>	Low
<b>Hazard level reflects expected frequency of extreme heat conditions, using simulations of long-term variations in temperature and expert guidance. Extreme heat is assessed using a widely accepted heat stress indicator, the Wet Bulb Globe Temperature (°C).</b>	Medium
	High
<b>Cyclone and Hurricane</b>	Low: Category 1 (119-153 km/h)

**Cyclone categories based on damage potential as classified by Saffir-Simpson Scale** Medium: Category 2 (154-177 km/h)

High:  $\geq$  Category 3 (178-208 km/h)

**Wind Speed**

Low:  $\leq$  11m/s

Medium: 11-21 m/s

High:  $>$  21 m/s

**BMTPC Wind Hazard Categorization**

Low:  $\leq$  33m/s

**Based on basic wind speed (peak wind speed averaged over 3 sec for a 50 year return period)**

Medium: 33-44 m/s

High:  $>$  44 m/s

## 8.4 Methodology for Transition Risk Assessment

Transitional Climate Risk Assessment (TCRA) is a specific type of climate risk assessment that focuses on the risks and opportunities associated with the transition to a low-carbon or climate-resilient economy. This assessment helps organizations and businesses understand how they may be affected by shifts in policies, technologies, markets, and consumer preferences related to climate change mitigation and adaptation. Here's a detailed description of the scope and approach for conducting a TCRA:

### 8.4.1 Scope

- **Define Objectives:** Begin by clearly defining the objectives of the TCRA. Determine what you aim to achieve through this assessment, such as identifying risks to your business model, evaluating opportunities for sustainable growth, or ensuring compliance with climate-related regulations.
- **Identify Stakeholders:** Identify all relevant stakeholders who will be impacted by or have an interest in the TCRA. This may include investors, customers, employees, suppliers, regulatory bodies, and advocacy groups.
- **Geographical Scope:** Define the geographical areas where your organization operates or has exposure to transitional climate risks. Consider both domestic and international operations if applicable.
- **Temporal Scope:** Determine the timeframe for the assessment. Consider both short-term and long-term horizons to capture immediate and gradual transitional risks and opportunities.
- **Focus on Climate Transitions:** In a TCRA, the primary focus is on climate transitions, such as the shift to a low-carbon economy, changes in energy sources, carbon pricing mechanisms, and evolving regulatory frameworks related to climate change mitigation and adaptation.

### 8.4.2 Approach for the Screening Process

- **Data Collection and Compilation**
  - Gather relevant data on climate policies, regulations, and market trends at the local, national, and international levels.
  - Collect information on your organization's carbon emissions, energy consumption, and other environmental metrics.
  - Research emerging technologies and market developments related to clean energy, sustainability, and climate adaptation.

- **Risk Identification**
  - Identify the potential risks associated with climate transitions that may impact your organization. These could include regulatory changes, carbon pricing, shifts in consumer preferences, supply chain disruptions, and reputational risks.
  - Evaluate the significance of these risks in terms of their potential impact on your business model, profitability, and long-term sustainability.
- **Opportunity Assessment**
  - Identify opportunities for your organization to benefit from climate transitions. This may include developing green products or services, entering new markets, and improving energy efficiency.
  - Assess the financial and strategic viability of these opportunities and how they align with your organization's goals.
- **Scenario Analysis**
  - Develop multiple scenarios to explore different pathways of climate transitions, such as rapid regulatory changes, gradual market shifts, or disruptive technological advancements.
  - Analyze how these scenarios would affect your organization's operations, revenue, and profitability.
- **Integration with Strategy**
  - Integrate the findings from the TCRA into your organization's strategic planning process. Consider how you can adapt your business model to align with low-carbon and climate-resilient strategies.
  - Develop a clear action plan for addressing identified risks and pursuing opportunities.
- **Reporting and Communication**
  - Prepare a comprehensive TCRA report that summarizes the findings, including identified risks, opportunities, and recommended actions.
  - Communicate the results to internal and external stakeholders, including investors, customers, and employees, to build trust and transparency.
- **Monitoring and Review**
  - Establish a system for ongoing monitoring and review of transitional climate risks and opportunities.
  - Update the TCRA periodically to account for changing policy landscapes, market dynamics, and technological advancements.

Establish a system for ongoing monitoring and review of transitional climate risks and opportunities. Update the TCRA periodically to account for changing policy landscapes, market dynamics, and technological advancements.

## 8.5 Climate Change and Disaster Management Policy in India

### National Action Plan on Climate Change (2008)

The Government of India launched National Action Plan on Climate Change (NAPCC) in 2008 outlining eight (8) National Missions on climate change . These include:

- National Solar Mission
- National Mission for Enhanced Energy Efficiency
- National Mission on Sustainable Habitat
- National Water Mission
- National Mission for Sustaining the Himalayan Eco-system
- National Mission for a Green India
- National Mission for Sustainable Agriculture
- National Mission on Strategic Knowledge for Climate Change

Under this purview the National Action Plan for Climate Change recognized following dimension to address the threats from climate change and sustain required economic growth of the country-

- Protection of Poor

- Sustainability
- Implementation
- International cooperation

### **Nationally Determined Contributions (NDC's)**

**India has committed to the objectives of Paris Agreement through the following goals -**

- To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.
- To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.
- To reduce the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 level.
- To achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF).
- To create an additional carbon sink of 2.5 to 3 billion tonnes of CO<sub>2</sub> equivalent through additional forest and tree cover by 2030.
- To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.
- To mobilize domestic and new & additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap.
- To build capacities, create domestic framework and international architecture for quick diffusion of cutting edge climate technology in India and for joint collaborative R&D for such future technologies.

### **Climate Change Adaptation Actions**

The adverse impacts of climate change on the developmental prospects of the country are amplified enormously by the existence of widespread poverty and dependence of a large proportion of the population on climate sensitive sectors for livelihood. A range of actions have been introduced to address it which are given below:

- **National Adaptation Fund on Climate Change (NAFCC)** - NAFCC was launched in 2015-16 by Ministry of Environment, Forest and Climate Change (MoEFCC) to cover vulnerable sectors such as Water, Agriculture and Animal Husbandry, Forestry, Ecosystems and Biodiversity across the country. The overall aim of the fund is to support concrete adaptation activities which are not covered under on-going activities through the schemes of State and National Government that reduce the adverse effects of climate change facing community, sector and states. The Fund is meant to assist National and State level activities to meet the cost of adaptation measures in areas that are particularly vulnerable to the adverse impacts of climate Change.
- **Programmes/Schemes with Adaptation Co-benefits** - Programmes were identified by the government of India which provide additional benefits of climate change in the arenas of agriculture, agroforestry, water supply and sanitation, water conservation, food security, soil quality, heatwave management, Integrated Watershed Management Program (IWMP), National Vector Borne Disease Control Programme (NVBDCP), State Disaster Response Fund, and Coalition for Disaster Resilient Infrastructure (CDRI).

**Among all the above actions, the most relevant actions in the context of this project include:**

- Guidelines for preparation of Action Plan – Prevention and Management of Heat-Wave 2019- It aims for improving the capacity of the States to deal with heat wave management in a planned manner.
- State Disaster Response Fund - Primary fund available with State Governments for responses to notified disasters. Disasters covered under SDRF: Cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloudburst, pest attack, frost and cold waves.
- Coalition for Disaster Resilient Infrastructure (CDRI) - Aims to promote resilience of new and existing infrastructure systems to climate and disaster risks.

### **Disaster Management (DM) Act, 2005**

The Disaster Management Act, 2005 (DM Act 2005) lays down institutional and coordination mechanism for effective Disaster Management (DM) at the national, state, district and local levels. As mandated by this Act, the Government of India created a multi-layered institutional system consisting of the National Disaster Management Authority (NDMA) headed by the Prime Minister, the State

Disaster Management Authorities (SDMA) headed by the respective Chief Ministers and the District

Disaster Management Authorities (DDMA) headed by the District Collectors/ District Magistrate and co-chaired by Chairpersons of the local bodies.

### **National Policy on Disaster Management (NPDM), 2009**

The National Policy on Disaster Management (2009) recognized that disasters have detrimental effects on economic development of the nation. Moreover the policy affirmed that the socially and economically weaker sections of the society are the most vulnerable to the natural disaster. Below are the key components of the policy:

- This policy considers the natural disasters such as earthquake, floods and river erosion, cyclones and tsunamis, and landslides and avalanches and emergencies of modern times such as Chemical, Biological, Radiological and Nuclear (commonly known as CBRN) emergencies.
- The policy considers disaster management as a cyclic process consisting of six elements: prevention, mitigation, preparedness, response, rehabilitation, and recovery.
- It emphasises the need of an institutional structure for natural disaster management comprising central body of National Disaster Management Authority (NDMA) headed by Prime Minister of India, State Disaster Management Authorities (SDMAs) headed by respective Chief Ministers of the State, and District Disaster Management Authorities (DDMAs).

### **National Disaster Management Plan, 2019**

The National Disaster Management Plan (NDMP) provides a framework and direction to the Government agencies for all phases of disaster management cycle. The NDMP is a “dynamic document” in the sense that it will be periodically improved keeping up with the emerging global best practices and knowledge base in disaster management. It is in accordance with the provisions of the Disaster Management (DM) Act 2005, the guidance given in the National Policy on Disaster Management (NPDM) 2009, and the established National practices.

The NDMP recognizes the need to minimize, if not eliminate, any ambiguity in the responsibility framework. It, therefore, specifies who is responsible for what at different stages of managing disasters. It is meant to be implemented in a flexible and scalable manner in all phases of disaster management: a) Mitigation (prevention and risk reduction), b) Preparedness, c) Response and d)

Recovery (immediate restoration and build-back better). While the names of ministries/ departments of the Centre and State/UT having specific roles and responsibilities are mentioned in the Plan, in the spirit of the DM Act 2005 and the exigencies of humanitarian response, every ministry/ department and agency is expected to contribute to DM going beyond their normal rules of business. The key features of the NDMP are summarised below:

- Conforming to the national legal mandates - the DM Act 2005 and the NPDM 2009
- Participating proactively to realising the global goals as per agreements to which India is signatory - Sendai Framework for Disaster Risk Reduction (DRR), Sustainable Development Goals (SDGs) and Conference of Parties (COP21) Paris Agreement on Climate Change
- Prime Minister’s Ten Point Agenda for DRR articulating contemporary national priorities
- Social inclusion as a ubiquitous and cross-cutting principle
- Mainstreaming DRR as an integral feature

- The NDMP covers disaster management cycle for all types of hazards - natural and human-induced.
- The role of the central agencies is to support the disaster-affected State or the UT in response to requests for assistance in disaster management planning, preparedness, and capacity building, the central agencies will constantly work to upgrade Indian DM systems and practices as per global trends.
- The priorities of the Sendai Framework and those related to DRR in SDGs and Paris Agreement have been integrated into the planning framework for Disaster Risk Reduction under the following Thematic Areas for Disaster Risk Reduction:
  - Understanding Risk
  - Inter-Agency Coordination
  - Investing in DRR – Structural Measures
  - Investing in DRR – Non-Structural Measures
  - Capacity Development and
  - Climate Change Risk Management
- Climate change induced events such as cyclone, flood, landslide, drought, thunderstorm, lightning, etc., should be accounted for in disaster management.
- Integration of disaster risk reduction and climate change adaptation should be targeted.
- Involvement of private sector in disaster management and for businesses to integrate disaster risk into their management processes and involve the private sector in the areas of:
  - Technical support
  - Reconstruction effort
  - Risk management including covering risks to their own assets
  - Risk-informed investments in recovery efforts

## 8.6 Approaches to Climate Risk Management

Climate change risk management approaches generally fall into five categories:

- **Prediction, Forecasting, and Modeling** - Efforts to anticipate or predict risks from climate change, including wildfire monitoring, extreme weather forecasting, or dynamic scenario planning
- **Mitigation** - Efforts to reduce greenhouse gas emissions, other environmental impacts, or their impacts and consequences
- **Adaptation** - Strategies and tactics that improve an organization or value chain's capacity to cope with changes in climate
- **Engineering** - Climate, bio, or geo-engineering approaches to manipulate Earth's resources to counteract climate deterioration of natural systems, like, for example, cloud seeding to produce rainfall or breeding more drought-resilient crop species
- **Understanding** - Science, technology, knowledge, and education efforts to better understand and communicate the mechanisms of climate change and natural systems to support proactive climate risk management and innovation

Effective climate risk management to assess the most severe risks from climate change to your business model, identify which risk management approaches make sense for your organization, then institute the operational and governance steps to keep pace or ideally get ahead of your company's ongoing climate risks

Transition risks are also likely to be a key source of near-term economic impacts, assuming enough action is taken to reduce emissions. This type of risks can best be managed by making the necessary policy changes in an open and coordinated way internationally, and by the timely preparation by institutions. The sectors and activities most exposed to transition risks are those that extract and produce fossil fuels and those that emit large volumes of GHGs.

**Table 1 9 Overview of Climate Related risk and opportunity management Approach**

Key Area	Management Approach Element
<b>Governance</b>	<ul style="list-style-type: none"> <li>• Board’s oversight of climaterelated risks and opportunities</li> <li>• Management’s role in assessing and managing climate-related risks and opportunities</li> </ul>
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• Climate-related risks and opportunities over the short, medium, and long term</li> <li>• Impact of climate-related risks and opportunities on organization’s businesses, strategy, and financial planning</li> <li>• Resilience of the organization’s strategy, taking into consideration different scenarios</li> </ul>
<b>Risk Management</b>	<ul style="list-style-type: none"> <li>• Processes for identifying and assessing climate-related risks</li> <li>• Process for managing climate related risks</li> <li>• How process for identifying, assessing, and managing climate-related risks is integrated into the organizations overall risk management</li> </ul>
<b>Metrics and Target</b>	<ul style="list-style-type: none"> <li>• Metrics used to assess climate related risks and opportunities in line with its strategy and risk management process</li> <li>• GHG emissions of the Project and the related risks</li> <li>• Targets used by the organization to manage climate related risks and opportunities and performance against these targets</li> </ul>

## 8.7 Climate Change Strategy

climate strategy is built on the following climate scenarios:

- Reducing the impact of our business emissions: Through low carbon pathway commitment reduce emissions in operations and supply chain
- Building the physical resilience of the infrastructure based on an RCP 4.5 scenario
- Building business resilience to transition risks arising from the global commitment to meet a 1.5-degree scenario: Enhance physical and strategic resilience of operations and key stakeholders

Development of robust system and track and ensure integration of strategies in relevant business activities

## 8.8 Green House Gas (GHG) Emission Estimation

Greenhouse Gas (GHG) estimation in the supply chain for renewable energy projects is crucial for understanding the environmental impact of these projects and for developing strategies to reduce emissions. GHG emissions in the supply chain of renewable projects come from various stages, including material extraction, manufacturing, transportation, installation, operation, and decommissioning.

The indicative approach to calculate the GHG emission involves:

- **Defining project boundary.** Only those emissions that are result of, and directly attributable to the project activity should be counted as project emissions. The approach supports the definition: *“the project boundary shall encompass all anthropogenic emissions by sources of GHGs under the control of project participants that are significant and reasonably attributable to the project activity”*. In a nutshell, project boundary encompasses relevant activities in projects.



- **Project Emissions:** Project emissions correspond to GHG emissions that would result if the proposed project activity is implemented.
- The project emissions can be derived from project-related documents, which should contain major technical parameters in connection with project energy and fuel consumption since they are fundamental elements of a project’s design.
- **Emission Factors:** An emission factor is defined as an average emission rate of a given GHG for a given source, relative to units of activity. It is usually stated as GHG emission rate per unit of input or per unit of output. For example, for power generation projects emission factor in terms of inputs or fuels can be stated as tons, kg GHG/liter of oil or kg CO<sub>2</sub>/TJ of gas; for the same projects, emission factor stated in terms of output electricity can be in tons GHG/MWh of electricity generated.
- One of the most useful emission factors is the grid emission factor or “combined” emission factor. It is the measure of CO<sub>2</sub> emissions intensity per unit of electricity generation in the grid system (tons CO<sub>2</sub>/MWh). It represents the CO<sub>2</sub> emission from grid-connected power plants —those currently operating and those that are expected to be built.
- **GHG Emission:** The GHG emission is equal to the input or output of the activity/project multiplied by the appropriate emission factor.
  - **Scope 1 Direct GHG Emission:** Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned vehicles and DG Sets, etc.
  - **Scope 2 Indirect GHG Emission:** Scope 2 accounts for GHG emissions from the generation of purchased electricity/grid electricity consumed by a company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.
  - **Scope 3 Other Indirect Emission:** Scope 3 accounts for GHG emissions from all other indirect emissions that occur in the value chain of the company, both upstream and downstream, such as-purchased goods and services, transportation and distribution and waste disposal.

### Equation for Calculating the GHG Emission

The following general equations are used to estimate GHG emissions:

- **Scope 1 Emission**

$$\text{Emission} = \text{Fuel} * \text{Emission Factor}$$

Where:

$$\text{Emissions} = \text{Mass of CO}_2 \text{ equivalent}$$

$$\text{Emission Factors} = \text{CO}_2 \text{ equivalent, emission factor}$$

$$\text{Fuel} = \text{Mass or Volume of fuel combusted}$$

- **Scope 2 Emission**

$$\text{Emission} = \text{Electricity} * \text{Emission Factor}$$

Where:

$$\text{Emissions} = \text{Mass of CO}_2 \text{ equivalent emitted}$$

$$\text{Electricity} = \text{Quantity of Electricity Purchased}$$

$$\text{Emission Factors} = \text{CO}_2 \text{ equivalent, emission factor}$$

- **Scope 3 Emission**

Purchased goods and Services

Emission = Mass of Goods\* Emission Factor of Goods

Upstream Transportation and Distribution

Emission = Total Fuel Consumption \* Fuel emission factor OR

Distance travelled (Kms) \* Transport Emission Factor \* Mass of goods carried (tonnes)

HFE calculate GHG emission as per the following indicative format

<b>GHG Emission</b>	<b>Emission Sources</b>	<b>Emission (tonne CO<sub>2</sub> equivalent)</b>
<b>Scope 1(Direct Emission)</b>	<ul style="list-style-type: none"> <li>• DG Sets</li> <li>• Company owned Vehicles</li> </ul>	
<b>Scope 2 (Indirect Emission)</b>	<ul style="list-style-type: none"> <li>• Grid Electricity used</li> </ul>	
<b>Scope 3 (Other Indirect Emission)</b>	<ul style="list-style-type: none"> <li>• Purchased goods and services.</li> <li>• Transportation and Distribution</li> </ul>	
<b>Total GHG Emission</b>		

## 9 APPENDIX I: Occupational Health and Safety

HFE is committed to ensure wellbeing, health and safety of the people along with preventing property damages. The Occupational Health and Safety (OHS) Plan of HFE provides information to help develop safe work practices for typical solar/wind projects for both construction and operation and maintenance (O & M) stages. The safety topics discussed in this plan are task-oriented, associated with HFE projects. The topics follow a proactive strategy (means taking action to make sure accidents do not happen in the workplace) and are used for training purposes to inform the installers and O&M personnel regarding the best practices in occupational health and safety.

### 9.1 Scope and Applicability

The OHS plan is applicable to:

- Employees/Workers of the company,
- Service providers including contractors, sub-contractors and their workers, and
- All visitors in the HFE plant.

HFE shall also ensure that the measures outlined in the plan shall be extended to the third-party facilities to adopt and align the OHS procedures with HFE's requirements.

### 9.2 Applicable Reference Framework

- The Building and Other Construction Workers Act
- Electricity Act, 2003, Rule 19 of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010
- IFC EHS Guidelines

### 9.3 Roles & Responsibilities

The EHS Manager and Safety Officer of HFE are responsible for the implementation of this Plan. Roles and responsibilities of team members w.r.t OHS Plan are as follows:

S. No.	Who	Key Responsibilities
1	Management	<ul style="list-style-type: none"><li>• Demand safe performance from each employee/workers/contractor and express this demand periodically and whenever the opportunity presents itself.</li><li>• Delegate the responsibility for a safe performance to the Safety Team, Supervisors, and Employees, as appropriate.</li><li>• Hold every employee accountable for safety and evaluate performance accordingly.</li><li>• Periodically review the Safety Program effectiveness and results.</li></ul>
2	EHS Manager	<ul style="list-style-type: none"><li>• Advise and assist the management in the fulfilment of its obligations, statutory or otherwise concerning prevention of personal injuries and maintaining a safe working environment.</li><li>• Advise the departmental heads, supervisors and other such officers in planning and organizing measures necessary for the effective control of personal injuries.</li><li>• Advise on safety aspects in all job studies, and to carry out detailed job safety studies of selected jobs.</li><li>• Check and evaluate the effectiveness of the action taken or proposed to be taken to prevent personal injuries.</li><li>• Advise the personnel of store purchase department in ensuring high quality and availability of personal protective equipment etc.</li><li>• Advise on matters relating to carrying out plant safety inspections.</li><li>• Carry out plant safety inspections in order to observe the physical conditions of work and the work practice procedures followed by the workers and to render advice on measures to be adopted for reducing the unsafe physical conditions and preventing unsafe actions by workers.</li></ul>

S. No.	Who	Key Responsibilities
		<ul style="list-style-type: none"> <li>• Advice on matters relating to reporting and investigation of incidents/accidents.</li> <li>• Ensure that all requirements mentioned in the plan are implemented at the plant.</li> <li>• Responsible for monitoring and auditing compliance with legislation in respect of health and safety risks.</li> <li>• Maintain round the clock maintenance staff for emergency repairs and audit the response times from reporting to inspection and implementation of corrective actions and maintains an inspection report tracker with corrective and preventive actions.</li> </ul>
3	<b>Safety Officer</b>	<ul style="list-style-type: none"> <li>• Design and conduct suitable training and educational program for the prevention of personal injuries and to hold safety seminars at least once in a year.</li> <li>• Ensure the availability of Personal Protective Equipment (PPEs) at the plants.</li> <li>• Provide health and safety information to workers and visitors.</li> <li>• Provide health and safety training.</li> <li>• Ensure adequate bilingual internal and external signages are displayed.</li> <li>• Maintain and implement preventive and breakdown plan for the installations.</li> </ul>
4	<b>Employees/ Workers</b>	<ul style="list-style-type: none"> <li>• Adhere to safe work procedures.</li> <li>• Co-operate at all times on matters of safety and use machinery and equipment as instructed and use PPE supplied by in-charge as is appropriate.</li> <li>• Comply with all Health &amp; Safety regulations.</li> <li>• Report unsafe acts and unsafe conditions to area supervisor immediately.</li> <li>• Report any injury or illness to area supervisor immediately.</li> </ul>

## 9.4 Health and Safety Management Procedures

### *Pre-Construction and Construction Phase*

The following H&S measures will be adopted during Pre-Construction and Construction Phase:

- All workers will be provided with adequate PPEs like face shields, helmets, goggles, safety shoes etc. and further ensure that all workers wear their proper PPEs as per their nature of work during construction related activities to ensure H&S of workers at Site
- Ensure provision and maintenance of drinking water and sanitation facilitation for construction workers in accordance with the provision of Contract Labour Act 1970 and Building and Other Construction Workers Act 1996 and as amended
- Periodic cleaning/housekeeping of work areas will be undertaken and supervised by the Site Supervisor to ensure hygienic conditions on site
- Workers will stop working in extreme natural climatic conditions i.e. heat wave, heavy rain etc.
- All work places will have adequate fire alarms and firefighting equipment's to handle any outbreak of fire.
- Training on Electrical Safety, Personnel hygiene, use of firefighting provisions etc. will be conducted at Site at regular intervals
- Conduct regular mock drill at Site
- Adequate drinking water will be supplied at workplace for workers onsite and ensure water quality meets drinking water quality standards. HFE needs to ensure it through water supply tankers supplying drinking water at Site
- Periodic health check-up camps for workers onsite will be organized to ensure prevention of occupational health hazards
- Site will have adequate First Aid kits to manage injuries occurring in the area
- The switchyard building will be provided with fire extinguishers and sand buckets at all strategic locations to deal with any incident of fire
- Adequate rest will be provided for the workers during the construction process

- HFE will follow precautions directed by the state and central government in relation to COVID 19 sensitization
- Whenever accidents or dangerous events occur such incidents will be reported as notified in the sections 88 and 88A of Factories Act 1948, amended from time to time and also as per the Schedule 6 of the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules 1989.

### Operational Phase

Although no significant occupational health and safety risks are identified during operations, the following mitigation measures need to be adopted:

- O&M Team will be provided with adequate PPEs depending upon nature of the operation and occupation health and safety risks associated with it
- Special emphasis on electrical safety will be laid and all employees will be trained in electrical safety and First Aid.
- Periodic medical examination will be undertaken for workers including contractor and subcontractor (if any) engaged at Plant.
- Periodic inspections will be carried out to ensure the entire above are implemented and any non-conformances will be recorded along with grievance related to H&S issues
- The switchyard building will be provided with fire extinguishers and sand buckets at all strategic locations to deal with any incident of fire
- Training on Electrical Safety, Personnel hygiene, use of firefighting provisions etc. will be conducted at Site at regular intervals
- Conducts regular mock drill and implement Lock out/ Tag Out (LOTO) system at Site.
- HFE will follow precautions directed by the state and central government in relation to COVID 19 sensitization.
- Whenever accidents or dangerous events occur such incidents will be reported as notified in the sections 88 and 88A of Factories Act 1948, amended from time to time and also as per the *Schedule 6 of the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules 1989*.

### Decommissioning Phase

- All workers will be provided with adequate PPEs like face shields, helmets, goggles, safety shoes etc. and further ensure that all workers wear their proper PPE during the dismantling of WTGs to ensure H&S of workers at Site.
- Adequate rest will be provided for the workers during the dismantling process.
- Whenever accidents or dangerous events occur such incidents will be reported as notified in the sections 88 and 88A of Factories Act 1948, amended from time to time and also as per the *Schedule 6 of the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules 1989*.

## 9.5 OHS Hazards & Mitigation Measures

**Table 9-1** below describes risks associated with potential hazards and mitigation measures which shall be adopted to prevent any mishap, accident and damage to workers at project site.

**Table 9-1 OHS Hazards and Mitigation/Management Measures**

S. No.	Source/Cause	Identified Risks	Mitigation measures
1.	<b>PHYSICAL HAZARDS</b>		
1.1.	<b>Electrical Safety</b>		
	Electric installation, Electric panels, Switch boards, Live	Electrical hazards exist in contact with exposed	Maintenance Department will implement all necessary provisions as specified in relevant regulations such as Factories Act and Rules

S. No.	Source/Cause	Identified Risks	Mitigation measures
	wires and fall of lightning from the sky, etc.	<p>live parts, faulty electrical devices (like circuit breakers, panels, cables, cords, and hand tools) which could cause fire or explosions where an electrical fault is the source of ignition.</p> <ul style="list-style-type: none"> <li>• Electrocution incidents can be fatal, while non-fatal shocks can result in serious and permanent burn injuries to skin, internal tissues and damage to the heart depending on the length and severity of the shock.</li> <li>• Allowing incompetent person to work in electric installation can result in injuries/accidents.</li> <li>• Irregular maintenance of the electric installation and panels, can result in fire or explosion.</li> </ul>	<p>(state specific), <i>National Electric Code 2010, Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations 2010 and Other relevant rules of Local Bodies and Electricity Boards.</i></p> <ul style="list-style-type: none"> <li>• Marking all energized electrical devices and lines with warning signs.</li> <li>• 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.</li> <li>• 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.</li> <li>• Double insulating/grounding all electrical equipment used in environments that are, or may become, wet; using equipment with ground fault interrupter (GFI) protected circuits.</li> <li>• Method of earthing, installation and earth testing results shall conform to relevant I.S. Specifications (IS-3043).</li> <li>• Protecting power cords and extension cords against damage from traffic by shielding or suspending above traffic areas</li> <li>• Appropriate labelling of service rooms housing high voltage equipment ('electrical hazard') and where entry is controlled or prohibited.</li> <li>• Establishing "No Approach" zones around or under high voltage power lines.</li> <li>• Conducting detailed identification and marking of all buried electrical wiring prior to any excavation work.</li> <li>• Use of appropriate PPEs shall be ensured such as shockproof gloves and boots. It shall be ensured wooden or insulated ladder be used while carrying out electrical works and the authorized personnel shall not wear metal rings, chains etc.</li> <li>• Proper Earthing, bonding, and grounding of all non-current carrying metal parts of switchgear and control panels shall be ensured. Earth-leakage circuit breaker (ELCB) will be used in all electrical installations with high earth impedance to prevent shock</li> <li>• Check that socket outlets are not overloaded by using un-fused adaptors as this can cause fire. The fuse rating should not exceed twice the normal load current of the tool as indicated in the rating plate.</li> <li>• Only authorized and qualified persons should undertake electrical repairs and other electrical works.</li> <li>• Use of Standard switches sockets and other fittings of adequate rating required for the operation</li> <li>• Use of double insulated 3 core cables and ensures cables are free from insulation failure</li> <li>• All electrical supply is controlled through circuit breakers and the same is periodically checked by competent person for its effective operation.</li> <li>• Do not allow unsafe temporary connections, naked joints/wiring</li> <li>• Don't work on electrical equipment in wet environment /on wet floors</li> <li>• Don't overload electrical point/equipment</li> <li>• Don't crowd things near electrical mains/switches and keep access free from obstructions.</li> <li>• Don't make trail &amp; errors and short cuts.</li> </ul>

S. No.	Source/Cause	Identified Risks	Mitigation measures
			<ul style="list-style-type: none"> <li>The entire installation shall be subjected to the following tests before energization of installation including portable equipment. <ul style="list-style-type: none"> <li>Insulation resistance test</li> <li>Polarity test of switches.</li> <li>Earth continuity test.</li> <li>Earth electrode resistance.</li> </ul> </li> </ul>

**1.2.**

**Fire and Life Safety**

<ul style="list-style-type: none"> <li>Electrical faults (faulty earths, loose connections, short circuits)</li> <li>Improper storage/handling of combustible/flammable materials.</li> <li>Heat source exposure near stored combustible/flammable materials.</li> <li>The accumulation of combustible/flammable waste and general refuse near ignition source can result in fire.</li> <li>Fuel/gas leakage.</li> <li>Cigarette/bidi buds</li> </ul>	<ul style="list-style-type: none"> <li>Fire may cause huge damage to turbines and its premises. Items that are not directly destroyed by the fire may often be severely affected by smoke.</li> <li>It may lead to community risk in case of large fire causing damage to the nearby communities.</li> <li>Loss of business and premises are difficult to recover, leaving many people without jobs and a place of work.</li> </ul>	<p>Any source of ignition shall not be allowed at any place where flammable or chemicals are being stored/handled/used/dispensed. Area where these products are present shall be displayed with a signage of flammable products. All portable fire extinguishers should be conspicuously located, accessible, and maintained in operating condition. Each fire extinguisher should be properly identified and labelled.</p> <ul style="list-style-type: none"> <li>Portable fire extinguishers will receive an annual service check and a monthly visual inspection. These will be documented on the tag on the extinguisher or other form.</li> <li>All fire-fighting equipment shall be maintained in accordance with the manufacturers' recommendations.</li> <li>Correct type of fire-fighting equipment should be used for a particular fire.</li> <li>Ensure that correct type of fire extinguishers i.e., Class ABC/Dry powder type shall be installed and used in case of fire, such as to extinguish Class B Fire (Flammable Liquid Fire) mechanical foam type extinguisher shall be placed.</li> <li>All workers/employees must know the location of fire-fighting equipment in the work area and most of them should have knowledge of its use and application. EHS Manager will ensure to provide relevant training to the employees/workers with regards to fire prevention and firefighting on regular basis as per the annual training calendar.</li> <li>Ensure regular inspections of turbines, machinery and equipment are performed on a regular basis as per the preventive maintenance schedule, as poorly maintained machines may overheat or cause sparking.</li> <li>Ensure that no waste material of a combustible/flammable nature is permitted to accumulate and shall be removed at least once in a day or in every shift, and more often possible.</li> <li>Workers shall receive appropriate training on procedures they need to follow, including fire drills. Regular mock drills shall be conducted and EHS Manager shall ensure active participation of every employee in such drills.</li> <li>When operating a fire extinguisher, employees should be trained to follow PASS (pull, aim, squeeze and sweep) method.</li> <li>Ensure emergency evacuation plan is up-to-date and affixed at conspicuous locations within the premises where travel distance is greater than 30 meters (horizontal or vertical) or dead-end is observed. Passages, entries and exits shall be kept free from any obstructions.</li> <li>Sand buckets shall have dry sand in each bucket to extinguish electrical fire or oil fire. The buckets shall be placed under a shed to prevent it from getting wet during rain.</li> <li>Emergency escape lighting system shall be made available in the entire site.</li> </ul>
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S. No.	Source/Cause	Identified Risks	Mitigation measures
1.3.	<ul style="list-style-type: none"> <li>• Working at height.</li> <li>• Unsafe working parameters.</li> <li>• No provision of handrails.</li> <li>• Improper ladder provisions.</li> <li>• Non-use/incorrect use of safety belt.</li> <li>• Poor housekeeping.</li> <li>• Inadequate risk assessment.</li> </ul>	<ul style="list-style-type: none"> <li>• Fall can cause partial and/or permanent disabilities and can also be fatal.</li> <li>• Property damage</li> </ul>	<p><b>Fall risk</b></p> <ul style="list-style-type: none"> <li>• EHS Manager will assess the work-at-height jobs that are undertaken and accordingly plant head for any potential hazards that might be present in the work area shall be assessed and work order shall be allocated for any work at height.</li> <li>• HFE will ensure to select the right equipment and people for works at height. Contractor workers shall be competent and experienced to carry out such works.</li> <li>• Fall protection systems will be evaluated by EHS Officer that will include (as required and not limited to): guardrails, safety net and personal fall arrestor systems. These systems shall be inspected before use. Use appropriate ladders confirming to standards. It shall be ensured metal ladders are not used for electrical works. Wheel locks/chokes shall be used in movable ladders with wheels while in use.</li> <li>• EHS Officer will ensure to provide relevant training (fall prevention, working techniques etc.) to the employees/workers with regards to fall protection before the work (through Toolbox Talks) and on regular basis.</li> </ul> <p><b>Work at Height:</b></p> <ul style="list-style-type: none"> <li>• The Contractor shall have a written plan for W@H, in addition to the relevant certificate(s), certifying the right to W@H.</li> <li>• Height works above one point eight (1.8) meters have safe access, egress, and safe platform. Otherwise, people shall be secured through use of full body harness with double lanyard including shock absorber and sufficient strengthened lifeline support.</li> <li>• Working platform shall have handrail, mid rail, and toe board. Certified horizontal lifeline shall be used, preferably 8mm wire rope.</li> <li>• Working at more than five (5) meters (e.g., transmission tower, truck covering etc.), or requiring different body posture even at lesser height shall require “Fall Arrestor” (for vertical movement).</li> <li>• Falling objects safety net shall be installed to arrest such objects.</li> <li>• Step ladder / platform should be used if any personnel intend to work at height. Use of empty drums to climb up is banned. People taking tools for working at height shall have tool kits to facilitate three (3) point contact during access and egress.</li> <li>• All the personnel involved in designing fall prevention measures or fall protection measures shall be subject to formal competency checks by the Contractor, prior to the personnel commencing the assigned work, to ensure that such personnel have the necessary training, experience, and qualification to perform the assigned work. The Contractor shall also have a rescue plan in writing, which provides for, inter alia, the manner and mechanism in which all persons at the Site, including people working at a height, are to be rescued.</li> </ul> <p><b>Scaffolds</b></p> <p>Contractor shall ensure compliance with standard practices for all scaffold related activities. Some of them are:</p> <ul style="list-style-type: none"> <li>• Every scaffold and its support shall be of good construction and be of suitable and sound material and strength. Use of wood and bamboo scaffolds are banned.</li> <li>• All elevated structures/ working platform areas should be guarded on all sides with railings and toe board as described.</li> </ul>



S. No.	Source/Cause	Identified Risks	Mitigation measures
			<ul style="list-style-type: none"> <li>Scaffolds shall be designed to support at least four (4) times the anticipated weight of men and material. It shall have standard inclined ladder / staircase for access and egress.</li> <li>Landing platform shall be provided at every nine (9) meters of height. Extra support can be taken from existing nearby structure. Maintain a safe distance from power lines.</li> <li>Fall protection when erecting, dismantling, modifying scaffolds shall be under the direction of a competent person.</li> <li>Scaffold shall be designed, erected, and certified for use by competent persons. Ready for use scaffolding shall be tagged with green board while other scaffolding shall be tagged with red tag and shall not be used pending certification.</li> </ul> <p><b>Portable Ladders</b> The Contractor shall ensure that:</p> <ul style="list-style-type: none"> <li>only commercially available and approved ladders of metal / aluminium / fiberglass are allowed to be used.</li> <li>Metal ladders shall not be used by persons performing electric welding or working near energized electric lines or services, unless otherwise approved in writing by the Employer for a specific job.</li> <li>Painted ladders are not permitted.</li> <li>All ladders shall be inspected by a qualified person or inspection agency as per the statutory requirements or requirements of the Employer.</li> <li>Bends, dents, cracks, lose or missing rivets, disconnected braces, condition of steps and corrosion seriously weaken a ladder. Destroy or repair any defective ladders immediately in accordance with manufacturers' recommendations.</li> </ul>

**1.4.**

**Manual Material Handling**

Manual handling is any task that requires push, pull, lift, carry, move, hold, or lower any object. Manual tasks include tasks that have repetitive actions, sustained postures and may involve exposure to vibration. The types of injuries related to manual handling include repetitive strain injuries, muscle injuries, tendon and ligament injuries, bone injuries and injuries from falling objects.

Improper manual handling, lifting, and carrying heavy objects can result in work-related musculoskeletal disorders (MSDs) such as pain and injuries to arms, legs, and joints, and repetitive strain injuries of various sorts.

Use of mechanical assists to eliminate or reduce exertions required to lift materials, hold tools, and work objects, and requiring multi-person lifts if weights exceed thresholds.  
HFE will ensure that no person (male/female) is allowed to manually lift, carry, move, hold, or lower any material weighing 40 kgs or more, unaided by another person.  
Shift in-charge will ensure that all employees wear appropriate PPE while handling packages.  
Incorporating rest and stretch breaks into work processes and conducting job rotation.  
Implementing quality control and maintenance programs that reduce unnecessary forces and exertions.

- Ergonomically safe loading/unloading of material products shall be provided and monitoring of the same shall be done.
- Ergonomics training shall be planned and conducted as per the annual training plan for the employees engaged in manual handling operations.

**Hoisting/ Mobile lifting equipment**

- The Contractor's personnel are forbidden to ride on any hook, load, etc. Equipment operator certifications shall be submitted to the Employer's Site team. Unauthorized lifts (including tandem lifts) are not permitted. The Employer's site engineer must be notified prior

S. No.	Source/Cause	Identified Risks	Mitigation measures
		<p>to any critical lift (a critical lift is any lift that exceeds eighty percent (80%) of the design capacity of the lifting device/or exceeds 02 tons) being carried out.</p> <ul style="list-style-type: none"> <li>All lifting equipment, tools and tackles and devices shall be tested, certified, and maintained to manufacturer specifications. For man lift and other industrial lifts, the Contractor shall ensure that the Contractor, prior to deployment of the lifting equipment, tools and tackles and devices at the Site, procures a certificate from third party inspection agencies as per the statutory requirements, certifying the successful testing of such lifts at Site.</li> </ul> <p><b>Lifting Equipment</b></p> <ul style="list-style-type: none"> <li>The Contractor shall ensure that different man and material lifting equipment (different cranes, winch machine, hydraulic lift, etc.), tools and tackles proposed to be used at the Sites are suitable for the job and approved for use by the site team. The Contractor shall use the Employer's site checklist of different cranes / heavy vehicle etc. before hiring or bringing any such equipment to Site for use. After that the Contractor shall use periodic and daily checklist to ensure continued suitability. These equipment and tools should have all valid legal documents and maintenance record available with them. The operator shall have necessary statutory certification, training record on manufacturer's training and refresher training of every three (3) years with minimum experience of five (5) years in the job before coming to the Site. All cranes used at the Site must have safe load indicator, over run cut-off switch (anti-two block switch) and audio- visual alarms.</li> <li>The safe working load, date of last testing and due date for next testing should be clearly marked on the body. Use of first-generation hydra at the Sites are banned.</li> <li>All material lift job should have a documented plan as approved by the Site team and for any critical lifts (with weight of more than two (2) tons, as minimum normal practice but can be different as agreed by Site team) should have detail material lift plan validating soil compactness, crane placement, man and material locations, detail sling specification, angle of lift, approval, and presence of competent mechanical engineer during lift. Critical lifts are normally not permitted at night at the Sites.</li> <li>Some measures which employees shall follow while carrying out manual material handling include: <ul style="list-style-type: none"> <li>Movement should be in horizontal plane. Push and pull are preferable than lift or lower. Before lifting, the distance to be travelled and the time of grip should be considered.</li> <li>Lifting and lowering should be between knuckle (hip) height and shoulder height, it should be close to and in front of the body. Bending or twisting of body causes overexertion injuries.</li> <li>Material from bin or container should be easily removable. Containers of chemicals should be properly closed.</li> <li>If load is too heavy, use mechanical lifting device or take help from somebody.</li> <li>Get the load close to the body. Stand in a stable position with the feet pointing in the direction of movement. Lift mostly by straightening the legs.</li> <li>Temperature of the material, floor and work area should be comfortable. The floor should not be slippery.</li> <li>Use proper hand, eye, leg protection and respirator if necessary.</li> </ul> </li> </ul>	

S. No.	Source/Cause	Identified Risks	Mitigation measures
			<ul style="list-style-type: none"> <li>Keep hands free from oil and grease. Clean the material if it is slippery or dirty.</li> <li>Don't lift or lower awkwardly or by twisting the back or bending sideways or by extending the arms.</li> </ul>
<b>1.5.</b>	<b>Moving Parts of Machine</b>		
Moving Machines, Machines without guarding Moulding machine, forklift, conveyors, Winch Machines etc.	<ul style="list-style-type: none"> <li>People can be struck and injured by moving parts of machinery.</li> <li>Parts of the body can also be drawn in or trapped between moving/rotating parts of turbine.</li> <li>Moving machine parts have the potential to cause severe workplace injuries, such as crushed fingers or hands, amputations, burns, or blindness.</li> </ul>	<ul style="list-style-type: none"> <li>Where a machine or equipment has an exposed moving part or exposed pinch point that may endanger the safety of any worker, the machine or equipment should be equipped with, and protected by, a guard or other device that prevents access to the moving part or pinch point. Guards should be designed and installed in conformance with appropriate machine safety standards and adequate training to handle machine shall be provided to workers.</li> <li>EHS Officer will conduct a machine guarding survey to ensure adequate guarding across moving parts of machines so as to prevent access by workers when in motion.</li> <li>HFE will ensure new purchased equipment meets the machine guard requirements prior to use.</li> <li>The Company will ensure to provide relevant work instructions and training to workers/employees such as wearing loose cloths will not be allowed near machines having moving parts.</li> <li>Workers wearing loose cloths shall not be allowed near machines having moving parts.</li> <li>Regular preventive maintenance of machines shall be done to prevent any defect of inadequacy in guard.</li> <li>Machines will be visually checked every shift or day before starting of work.</li> <li>General requirements to be fulfilled by machine safeguards includes: <ul style="list-style-type: none"> <li>Preventing contact from dangerous moving parts.</li> <li>Workers should not be able to easily remove or tamper with the safeguard. Guards and safety devices should be made of durable materials that will withstand normal use.</li> <li>Ensure that no objects can fall into moving parts and shall prevent creation of any hazard such a shear point, jagged edge, or an unfinished surface.</li> <li>Lubricate the machine without removing the safeguard. Locating oil reservoirs outside the guard, with a line leading to the lubrication point, will reduce the need for the operator or maintenance worker to enter the hazardous area.</li> </ul> </li> </ul>	<p><b>Machine Guarding</b></p> <ul style="list-style-type: none"> <li>Contractor shall be responsible for ensure guarding of rotating machines adequately to prevent exposure of personnel.</li> <li>The Contractor's supervisor shall ensure that lock-out and tag-out is performed according to the plan and no personnel works beyond the facilities protected through lockout and danger tags.</li> <li>All people involved directly or indirectly in the work associated with hazardous energy sources shall be involved in the control of these hazards. This involvement may include developing and / or reviewing the lockout plan, placing the locks and danger tag on isolation devices or group locks system, or at least verifying the lock/tag on the equipment on which they are supposed to work. The Contractor shall ensure that its personnel will try to ensure proper isolation before allowing people to work on the equipment. After ensuring proper lock-out and tag-out, key to the lock shall be</li> </ul>

S. No.	Source/Cause	Identified Risks	Mitigation measures
			made available to the concerned supervisor or the engineer in charge.
<b>1.6.</b>		<b>Handheld tools</b>	
	<ul style="list-style-type: none"> <li>• Broken handles on tool,</li> <li>• Slipping of tools,</li> <li>• Hot surfaces,</li> <li>• Gripping, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Broken handles on tool can cause cut injuries on fingers/hand or hurt other body parts.</li> <li>• Tools may slip and cause stab wounds.</li> <li>• Poor quality uncomfortable handles of tool can damage hands.</li> <li>• Use of poorly insulated tools may lead to serious harm/injuries.</li> <li>• Use of pipes or similar equipment as extension handles could slip during use and cause hand or face injury.</li> </ul>	<ul style="list-style-type: none"> <li>• HFE will provide tools only made of suitable quality materials which will not chip or splay in normal use, ensure use of right tools for the specific job, ensure employees and workers read and follow the manufacturer's instructions while using tools.</li> <li>• HFE will select and ensure use appropriate PPE, protected and insulated tools for electric work will be provided and regular inspection of hand tools will be done and be kept in good conditions.</li> <li>• Action (discard or repair) will be immediately taken on the defective tools by the supervisor.</li> <li>• EHS Manager will provide regular training to all users of hand tools as per annual training calendar.</li> <li>• EHS Manager will ensure use a toolbox, tool-holder, belt, or pouch, which will protect the person and the tool, ensure tools are not carried by hand up ladders. Carry pointed or sharp tools with the point or cutting edge away from the body.</li> <li>• Clean tools with a recommended non-flammable and nontoxic solvent.</li> </ul>
<b>1.7.</b>		<b>Vehicular movement</b>	
	<p>Improper traffic route; Blind turns; Inadequate lighting or road; Incompetent driver; Poor maintenance of vehicle Inadequate parking space</p>	<ul style="list-style-type: none"> <li>• People may knock down, run over, or crushed against fixed parts by vehicles (e.g., stacker, trucks, etc.) and trailers.</li> <li>• People may fall from vehicles while getting on or off, when loading or unloading etc.</li> <li>• The local environment, such as conditions of the roads, lighting and sight lines may lead to accidents during vehicular movement</li> </ul>	<ul style="list-style-type: none"> <li>• Training and licensing industrial vehicle operators in the safe operation of specialized vehicles such as forklifts, including safe loading/unloading, load limits. It shall be the duty of security guards to ensure drivers of vehicles have adequate driving license.</li> <li>• Ensuring drivers undergo periodic medical surveillance as required.</li> <li>• Ensuring moving equipment with restricted rear visibility is outfitted with audible back-up alarms.</li> <li>• Establishing rights-of-way, site speed limits (15-20kmph), vehicle inspection requirements, operating rules, and procedures (e.g., prohibiting operation of forklifts with forks in down position), and control of traffic patterns or direction.</li> <li>• Restricting the circulation of delivery and private vehicles to defined routes and areas, giving preference to 'one-way' circulation, where appropriate.</li> <li>• Ensure adequate turning clearance for safe movement of vehicles.</li> </ul>
<b>1.8.</b>		<b>Vibration</b>	
	<p>Power tools, machines, impact tools, etc.</p>	<ul style="list-style-type: none"> <li>• Exposure to hand-arm vibration from equipment such as hand and power tools, or whole-body vibrations from surfaces on which the</li> </ul>	<p>Limits for vibration and action values, (i.e., the level of exposure at which remediation should be initiated) shall be within limits as prescribed.</p> <p>Exposure levels should be checked on the basis of daily exposure time and data provided by equipment manufacturers.</p>

S. No.	Source/Cause	Identified Risks	Mitigation measures
		worker stands or sits, should be controlled through choice of equipment, installation of vibration dampening pads or devices, and limiting the duration of exposure.	
<b>1.9.</b>	<b>Personal Protective Equipment (PPE)</b>		
Improper use or storage of PPE	<ul style="list-style-type: none"> <li>▸ PPE provides additional protection to workers exposed to workplace hazards in conjunction with other facility controls and safety systems.</li> <li>▸ PPE is considered to be a last resort that is above and beyond the other facility controls and provides the worker with an extra level of personal protection</li> </ul>	<ul style="list-style-type: none"> <li>• Identification and provision of appropriate PPE that offers adequate protection to the worker, co-workers, and occasional visitors, without incurring unnecessary inconvenience to the individual.</li> <li>• Proper maintenance of PPE, including cleaning when dirty and replacement when damaged or worn out. Proper use of PPE should be part of the recurrent training programs for employees.</li> <li>• Selection of PPE shall be based on the hazard and risk ranking described earlier in this section and selected according to criteria on performance and testing established.</li> <li>• PPE Matrix shall be developed and displayed in strategic locations as required.</li> </ul>	
<b>2.</b>	<b>WORKER'S RELATED HAZARDS</b>		
<b>2.1</b>	<b>Workplace Violence</b>		
<ul style="list-style-type: none"> <li>• Unhappy relationship between workers, bullying, sexual and racial harassment is main causes of workplace violence.</li> <li>• Dealing with people under stress, as when people are under stress, they are less capable of handling their emotions and can lose control.</li> <li>• Dealing with people under the influence of drugs and alcohol, or with mental-health problems, when normal inhibitions on behaviour have been affected.</li> <li>• Lack of pre-employment screening.</li> <li>• No induction training.</li> <li>• Socio-economic factors.</li> </ul>	<ul style="list-style-type: none"> <li>▸ Worker can harm colleagues.</li> <li>▸ Interruption of company operations.</li> <li>▸ Company image can be defamed.</li> </ul>	<ul style="list-style-type: none"> <li>• HR Manager/Site head will monitor incidents of bullying, sexual and racial harassment and where necessary, the Company will take disciplinary action after hearing from involved parties. All such incidents will be logged and reported to the Company's senior management along with course of action initiated during the Management Review Meetings. Senior management will ensure all such incidents are handled and closed in an effective manner.</li> <li>• HR Manager will ensure to plan and conduct regular trainings (as per the annual training calendar) on behavioural aspects to all workers/employees with an aim to promote near-miss reporting culture in the organization to reduce the unsafe act/condition to turn into accidents. Records of the trainings shall be kept by HR Manager for at least a period of three (3) years.</li> </ul>	
<b>2.2</b>	<b>Worker New to the Job</b>		

S. No.	Source/Cause	Identified Risks	Mitigation measures
	<ul style="list-style-type: none"> <li>Lack of training and awareness.</li> </ul>	<p>Workers are at particular risk of injury in the first six (6) months of a job, when they are more likely to be unaware of existing or potential risks</p>	<ul style="list-style-type: none"> <li>The employer should ensure that workers and contractors, prior to commencement of new assignments, have received adequate training and information enabling them to understand work hazards (such as site rules, restricted areas, prohibited machines and processes, fire and emergency procedures, and details of any further training related to their particular job profile) and to protect their health from hazardous ambient factors that may be present.</li> <li>Ensure that no new worker/employee is engaged in any activity which involves a risk of accidents which he is unlikely to recognize because of e.g., their lack of experience, training, or attention to safety.</li> </ul>

### 2.3

#### Occupational health of workers

<p>Exposure to waste material, Stress, etc.</p>	<ul style="list-style-type: none"> <li>Ill health of workers may lead to decrease in productivity, accident/near miss/loss time injury at the workplace and create pressure on other employees to cover for those who are absent thereby leading to lower staff morale.</li> <li>Ill health of workers may also lead to financial loss (sick pay, insurance costs, etc.) to the employer.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that workers/employees are examined medically before employment and once in a period of six (6) months regularly.</li> <li>Detailed medical examination shall be conducted that includes physical examination of all employees engaged in manufacturing plant. The result of medical reports is only being discussed with the affected employees by the Doctor for further course of action, if any. Medical Reports of all employees will be maintained by HR Manager.</li> <li>Ensure that medical facilities such as Occupational Health Centre (OHC) or first-aid requirements are provided in line with the state specific regulatory requirements.</li> <li>Ensure that first-aid boxes are adequately stocked and inspected to ensure that to-be-expired items are duly removed before the month of expiry mentioned. Authorized personnel will ensure that no <i>Schedule-H</i> Drugs are kept in the first aid box available in the premises.</li> <li>EHS Officer, in consultation with safety committee will plan and conduct regular trainings, make available relevant guidance, resources and facilities to concerned personnel for occupational health hazards.</li> <li>Adequate PPEs like masks, safety shoes/ shoe covers, safety gowns, helmets, safety glasses, acid-alkali proof gloves etc. will be provided to all personnel, as per requirement and level of risk, to protect against any adverse health effects during operations, handling, leakage, or spillage of hazardous materials. It shall be ensured that the PPEs to be worn together are compatible.</li> </ul>
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### 2.4

#### Work permits

<p>Work at height, confined spaces, dangerous places etc.</p>	<ul style="list-style-type: none"> <li>Workers working without work permit can risk their job</li> <li>Workers can cause harm to their health and work if no proper instructions are issued before commencing the work.</li> <li>Adequate procedure if not followed during the task, can lead to wrong</li> </ul>	<ul style="list-style-type: none"> <li>Do not perform work without a valid work permit.</li> <li>Ensure that all precautions mentioned in work permit shall be taken before work start and shall be maintained till work is completed.</li> <li>Permits should be renewed after 24 hours if the work is going to continue.</li> <li>This work permit should always remain available at site till the completion of work/ permit should be posted at the work site.</li> <li>The person who issues the permit should spend sufficient time on shift handover to discuss all on-going and suspended work.</li> <li>Perform checks before work commences to make sure there is no live energy (mechanical, chemical, electrical, etc.).</li> <li>Monitor work whenever there is a risk of explosion or toxicity.</li> <li>A new permit must be issued if conditions or operating procedures change.</li> </ul>
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S. No.	Source/Cause	Identified Risks	Mitigation measures
		finished product which in turn can affect the business of HFE	<ul style="list-style-type: none"> <li>A risk assessment must be performed, addressing the operating procedure and the work environment.</li> <li>The responsibility to prepare the permit normally rest on production / maintenance / contractors or respective department and counter checking of preparation may be done by Safety Committee before giving clearance.</li> <li>Work Permit should be placed near the work area till the work discontinues.</li> <li>Permit issuing authority should rest with the in-charge of department doing the job. Approving authority should be the Safety Committee.</li> <li>The permit initiator should make arrangements for the precautionary measures or instruct the concerned group / contractor to make arrangement.</li> <li>After completion, the respective department should close the permit after restoring electrical connection and checking all other relevant areas.</li> <li>Lock Out- Tag Out (LOTO) systems to be apply in working at height and electrical work as and when required &amp; details of LOTO shall be mentioned in the height work permit by maintenance department.</li> <li>All workmen shall be trained for work to be carried out &amp; ensure use of applicable PPEs at site throughout work duration.</li> <li>Once permit is cancelled, new permit to be issued &amp; authorized as per above mentioned procedure.</li> </ul>

## 2.5

### Lavatories and Showers

Unhygienic lavatories and showers	<ul style="list-style-type: none"> <li>Can affect health of workers</li> <li>Can cause infection due to unhygienic facilities</li> <li>Can lead to outbreak of infection to mass workers and thus in turn affect the business of manufacturing facility.</li> </ul>	<ul style="list-style-type: none"> <li>Adequate lavatory facilities (toilets and washing areas) should be provided for the number of people expected to work at the project site and allowances made for segregated facilities, or for indicating whether the toilet facility is "In Use" or "Vacant".</li> <li>Toilet facilities should also be provided with adequate supplies of running water, soap, and hand drying devices.</li> <li>Where workers may be exposed to substances poisonous by ingestion and skin contamination may occur, facilities for showering and changing into and out of street and work clothes should be provided.</li> </ul>
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## 2.6

### Shift work, fatigues, and stress

Extended working hours, stress, inappropriate working posture, etc.	<ul style="list-style-type: none"> <li>Irregular hours of work and work patterns may lead to disruption of the internal body clock, sleeping difficulties and fatigue.</li> <li>The threat of change or the process itself, whether it affects just one worker (e.g., demotion, re-assignment) or the whole organization</li> </ul>	<p>HFE will ensure that employees are assigned appropriate workload, according to the length and the timing of the shift and discourage excessive hours and/or missing break periods (this may involve a detailed job evaluation).</p> <p>Job rotation will be introduced along with increase in job variety.</p> <p>Clear job descriptions will be provided by the HR Department along with respective departments and shall be ensured that the individual is matched to them.</p> <p>Supervisors will be trained to recognize stress symptoms among the workforces.</p> <p>Sufficient training to the workers will be imparted, so that he/she would be able to undertake the main functions of their job.</p>
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S. No.	Source/Cause	Identified Risks	Mitigation measures
		(e.g., redundancies, management takeover) can create huge anxiety and insecurity.	
<b>2.7</b>	<b>Temperature, ventilation, and air quality</b>		
	Inadequate ventilation, working in high heat zones/days, hazardous indoor air quality, Equipment and Machinery; Manufacturing process; Raw materials; Cleaning chemicals; Building materials and interior supplies; Outside sources.	<ul style="list-style-type: none"> <li>▸ Loss of concentration.</li> <li>▸ Nausea.</li> <li>▸ Headache.</li> <li>▸ Nasal irritation.</li> <li>▸ Difficult breathing (dyspnoeal).</li> <li>▸ Dryness in the throat.</li> </ul>	<ul style="list-style-type: none"> <li>• The temperature in work, rest room and other welfare facilities should, during service hours, be maintained at a level appropriate for the purpose of the facility.</li> <li>• Ensure regular maintenance of machineries and equipment.</li> <li>• Arrangements for adequate ventilation (through natural or artificial means) and fresh air supply within the premises will be made.</li> </ul>
<b>2.8</b>	<b>Noise</b>		
	High noise areas, machines, vehicles, DG Set, etc.	<ul style="list-style-type: none"> <li>• Loud noise at work zone can contribute to: <ul style="list-style-type: none"> <li>• Mental Stress.</li> <li>• Physical Stress.</li> <li>• Hearing Loss or Deafness.</li> </ul> </li> <li>• Affect labour productivity.</li> </ul>	<ul style="list-style-type: none"> <li>• EHS Manager will assess and map noise levels in the premises. Noise creating machines and equipment will be identified and adequately enclosed through engineering controls. High Noise Areas (above 90 dBA levels) will be marked on a map and workers/employees will be provided with adequate PPEs to work in such areas.</li> <li>• No employee should be exposed to a noise level greater than 75 dB(A) for a duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 dB(C).</li> <li>• The use of hearing protection should be enforced actively when the equivalent sound level over 8 hours reaches 75 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110dB(A).</li> <li>• Hearing protective devices provided should be capable of reducing sound levels at the ear to at least 75 dB(A).</li> <li>• Although hearing protection is preferred for any period of noise exposure in excess of 85 dB(A), an equivalent level of protection can be obtained, but less easily managed, by limiting the duration of noise exposure. For every 3 dB(A) increase in sound levels, the 'allowed' exposure period or duration should be reduced by 50 percent.</li> <li>• Prior to the issuance of hearing protective devices as the final control mechanism, use of acoustic insulating materials, isolation of the noise source, and other engineering controls should be investigated and implemented, where feasible.</li> <li>• Periodic medical hearing checks should be performed on workers exposed to high noise levels.</li> <li>• Central Pollution Control Board (CPCB) certified DG set conforming to the standards for noise will be used. DG sets shall be housed in an inbuilt acoustic enclosure, which will help to contain the noise within the permissible standards. Insertion Loss monitoring of DG sets will be done to ensure effectiveness of acoustic enclosure.</li> </ul>
<b>2.9</b>	<b>Drinking water</b>		



S. No.	Source/Cause	Identified Risks	Mitigation measures
	Municipal Supply; Outside Tanker Water Supply; Bottled drinking water.	<ul style="list-style-type: none"> <li>• Drinking contaminated/dirty water can cause waterborne illnesses such as:               <ul style="list-style-type: none"> <li>➢ Gastrointestinal Problems.</li> <li>➢ Diarrhoea.</li> <li>➢ Nausea.</li> <li>➢ Intestinal Stomach Cramping.</li> <li>➢ Intestinal Stomach Aches and Pains.</li> <li>➢ Dehydration.</li> </ul> </li> <li>• Death, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Effective arrangements to provide sufficient supply of wholesome drinking water at project site will be made by HFE</li> <li>• If using Reverse osmosis (RO) water, periodic testing of drinking water will be carried out and in case of bottled water, the facility will ask for drinking water test report of the respective batch from the supplier.</li> <li>• Drinking water analysis will be conducted on half yearly basis through an external approved laboratory to meet the drinking water quality standards i.e., IS 10500-2012 across all the facilities.</li> <li>• In case of packaged drinking water, supplier shall provide water testing report as per IS 14543: 2016 Packaged Drinking Water Specification.</li> <li>• Drinking water storage tank/container should be clean at regular intervals of time.</li> <li>• Drinking water storage tank and source from which water is being consumed will always be kept covered and locked.</li> <li>• Water supplied to areas of food preparation or for the purpose of personal hygiene (washing or bathing) should meet drinking water quality standards.</li> </ul>

## 9.6 Training

Company shall provide at least one (1) day induction training to every new employee/workers (including contractual workers) to inform about site rules and safety procedures, for making sure they understand them before commencing work, rather than relying on them to “pick it up” as they go along. The initial site specific induction should be followed by on-going safety and training to help employees work safely and efficiently.

Following trainings to be carried out at regular intervals:

- Induction Training on Construction Health and Safety;
- Tool Box Training;
- Mass Training;
- Special Job Hazard Training;
- Fire safety;
- First Aid; etc.

The Company shall also provide refresher training to their workers from time to time (like on six monthly basis), so that the workers should be aware of all the safety aspects to be followed during the operations at site.

## 9.7 Toolbox Talk

- **Frequency:** Before start of each shift/job
- **Topic of discussion:** Choose a topic that is relevant to the audience and job; one that will create a discussion; a two-way communication; use either own topic e.g. discuss an incident that happened on workplace the week before, discuss new work hazards, or one generated from Tool Box Talk program provided by the Safety Committee.
- **Location:** Assembly Point/ Entrance of work area with open space.
- **Time:** Limit the duration to 5-15 minutes.
- **Approach:** Use questioning approach, get the message across and listen to responses. Tool box talks are not lectures and are designed to get people to think and talk about safety.
- **Attendance:** Obtain signatures from participants to confirm attendance and keep on file.

The Company shall also provide refresher training to their workers from time to time (like on six monthly basis), so that the workers should be aware of all the safety aspects to be followed during the operations at site.

## **9.8 Accident/Incident/Near Miss Investigation and Reporting**

Employees, Site Head shall report accident/incident/near miss immediately, verbally and in writing to the EHS Manager and EHS Manager will further report to corporate level EHS Officer. All fatal accidents and other occurrences requiring reporting shall be reported to factories department and the police station in whose jurisdiction the accident occurred, by the top management.

The steps for conducting an effective accident investigation are:

- 1. Investigate the accident as soon as possible after it occurs:**

Accidents which result in death, serious injury or serious damage must be investigated by the area supervisor or manager immediately, to find out the cause of the accident so that measures can be formulated to prevent any recurrence. Investigations should be conducted in an open and positive atmosphere that encourages the witnesses to talk freely.
- 2. Information Collection:**
  - Take photographs.
  - Examine involved equipment, work piece or material and the environmental conditions.
  - Interview the injured, eyewitnesses and other involved persons.
  - Consult expert opinion where necessary.
- 3. Information Analysis:**
  - Establish the chain of events leading to the accident or incident.
  - Find out at what stage the accident took place.
  - Consider all possible causes and the interaction of different factors that led up to the accident and identify the most probable cause.
- 4. Develop a Preventive Action Plan**

EHS Officer will develop a preventive action plan which should include action to prevent the same or similar kind of accident from happening again.
- 5. Investigation Report Submission**

After completing investigation, the investigation officer will submit investigation report to top management including following details:

  - Nature of incident i.e. fatal, loss time injury, near miss.
  - Names of the affected employees and the witnesses.
  - Immediate and root causes of the accident/incident.
  - Interview summary.
  - List of evidences.
  - Identification and implementation of the preventive actions to prevent a recurrence.
  - Person responsible for assuring the implementation of the preventive actions.
  - Timeline for the preventive actions.

## **9.9 Monitoring Process**

Through the process of inspection and monitoring, Company shall ensure that all the requirements of conditions of the applicable framework and benchmarks as suggested within this manual or other permit/approval document are effectively met including those of risk assessment checklists and action plans.

## 9.10 Record Keeping

**At minimum following records shall be maintained at Project site:**

- Medical Check-up and Health records of the employees/workers.
- Records of the work permits issued.
- Preventive Maintenance schedule.
- Safety Induction and Training records.
- Records of Mock Drills.
- Training Attendance Records, along with Training Modules.
- Took box attendance records.
- Drinking Water analysis reports.
- Accident/Incident Records along with Root-cause investigations, if any.

## 9.11 Review

Safety Committee with support of EHS Officer and EHS Manager are responsible for reviewing this plan annually or before that, if there are any amendments in the legal/statutory requirements at regional, State and/or National level.

### Amendments in OHS Plan

The latest versions of the Documentation Format must be used at all times. This page needs to be updated whenever there is a change in the version number of the documents.

S. No.	Date	Version	Details of Amendments

## 9.12 Reporting Checklist/Formats

- Form1: PPE Checklist
- Form 2: Checklist for Hot Works
- Form 3: Checklist for Work at Height
- Form-4: Ergonomics Checklist




### **Form-1: PPE Checklist**

Name and Location of Site:









Name of Site Safety/EHS Officer:



List the person responsible for the distribution of PPE and the storage location:

**Controlled PPE**

<u>PPE</u>	<u>SYMBOL</u>	<u>RESPONSIBLE PERSON</u>	<u>STORAGE LOCATION</u>
RESPIRATORS AND RESPIRATOR CARTRIDGES			
SAFETY HARNESS			
SAFETY BELT			
OTHERS			

**Uncontrolled PPE**

<u>PPE</u>	<u>SYMBOL</u>	<u>RESPONSIBLE PERSON</u>	<u>STORAGE LOCATION</u>
HAND PROTECTION (GLOVES)			
BODY PROTECTION (TYVEX SUITS, APRONS)			
FOOT PROTECTION			
EYE/FACE PROTECTION			
HEARING PROTECTION			
HEAT/COLD PROTECTION			
PROTECTIVE FACE SHIELD			
HARD HAT			

<u>PPE</u>	<u>SYMBOL</u>	<u>RESPONSIBLE PERSON</u>	<u>STORAGE LOCATION</u>
WELDING MASK			
HIGH VISIBILITY CLOTHING			

### Form-2: Checklist for Hot Works

Site Safety/EHS Officer shall maintain following during the entire life cycle of the project

- Hot Work Permits in relation to the hot work after the completion of hot work
- Pre-Hot Work Check
- Completed Risk Assessment for 5 years from the date of preparation
- Training Records

### Pre-Hot Work Check

<u>Prerequisite Requirements</u>	<u>Conditions Met (TICK if yes, mark N/A if not applicable)</u>
Is hot work to be performed?	
Is equipment to be used in good Working Order and properly inspected or tested as required?	
Have all personnel be provided with adequate PPEs(gloves, eye protection, shielding, dust mask)	
Is a fully charged, operational and fully rated fire extinguisher available?	
Are all combustible material removed from the site of operations and floors swept clean of combustible materials?	
Are all combustible material remaining in the vicinity is either thoroughly drenched with water or covered with damp sand or covered with non-combustible sheets?	
Are all gaps in walls and floors through which sparks could pass covered with sheets of non-combustible materials?	
Is the number of the nearest ambulance/police station displayed?	
Are adequate precautions taken to avoid accidental operation of automatic fire detection systems (isolation, physical barrier etc.)	

### Form-3: Checklist for Work at Height

- A programme of daily visual checks, regular inspections and servicing schedules should be established in accordance with the manufacturer’s instructions and the risks associated with each MEWP, scaffold, ladders, lifts and hoists.
- Operators should be encouraged to report defects or problems. Reported problems should be put right quickly and the equipment taken out of service if the item is safety critical.

- These equipment must be thoroughly examined at least every six months or before by a competent person or in accordance with an examination scheme drawn up by such a competent person.

• **Checkpoints to be considered for work at height (=>2 m)**

S No	Checkpoints	YES/NO/NA	S No	Checkpoints	YES/NO/NA
1	Is the surrounding area checked and employees have been cautioned and shifted to safer place?		8	Are the required Personal Protective Equipment (Hand gloves, apron, helmet, safety glasses, Shoes, Safety belt, hearing protection, respirator etc.) provided?	
2	Is the surrounding area barricaded and caution board displayed?		9	Is the location of nearest phone, safety shower /eyewash and fire extinguisher reviewed before start of work?	
3	Is the proper scaffold/ladder provided and tied at top?		10	Is the LOCKOUT and TAGOUT system used to isolate all type of energy sources before attending the work?	
4	Is the walking platform provided and supported with structure?		11	Have the workers attending the work been informed about the emergency procedure?	
5	Is the safety belt used and lifeline anchored?		12	Does the electrical cable and equipment have earthing and three-pin?	
6	Are the additional fall protection measures like safety net, crawling boards, fall arrester provided?		13	After the work are the hand tools removed? (After completion of work)	
7	Is the standby/supervisor person deputed to watch and warn personnel?		14	Is the dirt/waste and material removed from the site after the work? (After completion of work)	

**Form-4: Ergonomics Checklist**

Site Safety/EHS Officer shall maintain following during the entire life cycle of the project

- Incident Reports (recording past incidents of ergonomic hazards)
- Training records
- Medical Records

• **Ergonomic Workstation Analysis Checklist**

Workplace				
Items	Yes/No/NA	Identified Task	Hazards/Problems	Observations/ Recommendations
Workstation lack adjustability for multiple operators?				
Dim lighting causing eyestrain				

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**Workplace**

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Items	Yes/No/NA	Identified Task	Hazards/Problems	Observations/ Recommendations
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Excessive background or task noise sources present

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Inadequate clearances for head, arms, legs, and feet

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Workplace storage, aisles, neighbouring workstations encroach on each other?

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**Administration**

Health records, claim data indicate loss trends?

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Workers complain target ergonomic problems?

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Evidence of employee modification at workplace?

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Are wrist belts or back belts used? Why?

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Supervisors educated on ergonomic issues?

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Incident investigations report target employee's carelessness as the cause

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Work rotation/job enlargement systems needed to reduce repetitive exposure?

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## 10 APPENDIX J: Emergency Response and Fire Protection

### 10.1 Purpose

To design a systematic approach for the efficient handling of emergencies and events, as well as to reduce any negative effects on the environment and harmful impacts to people and property. This emergency response plan outlines HFE's emergency procedures and is applicable to handle a variety of emergency circumstances that may arise on the wind power project site. The Emergency Preparedness and Response Plan outlines to all employees, contractors and visitors the actions that they are to take in the event of an emergency situation arising at the project site. This plan addresses the foreseeable emergencies that may occur at the project site and details the procedures and actions to be taken by those employees and explains broadly what rescue and medical first aid duties are to be performed and by whom.

### 10.2 Scope and Applicability

The management, employees, workers and all associated staff shall adopt and follow the procedures outlined in this Plan. The scope of this plan is intended to include the emergency situations explained later in the plan. This plan will act as a guiding document to the respective Emergency Response Team (ERT) members of HFE, who will further customize accordingly to include project specific information and explain the same to the employees. Measures developed in this plan will be used by employees, workers and all associated staff at the project site, with requirement for inclusion of fire infrastructure, emergency evacuation plan in line with building management and details of nearest hospitals, shortest route and emergency contact details etc.

### 10.3 Definitions

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Emergency	<p>'Emergency' means an actual or imminent event or situation, whether natural or otherwise occurring in any part which causes or threatens to cause all or any of the followings.</p> <ol style="list-style-type: none"><li>Widespread loss or damage to property, both immovable &amp; movable; or</li><li>Widespread loss of human life or injury or illness to human beings; or</li><li>Damage or degradation of environment</li></ol>
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Levels of Emergency	<p><u>Level 1:</u> Defines the level of emergency, which is controllable within the plant premises without activating the Emergency team; Emergency may be due to</p> <ul style="list-style-type: none"><li>Small fire in the plant</li><li>Small leakage of oil/gas</li><li>Collapsing of small equipment</li></ul> <p><u>Level 2:</u> Defines the emergency, which is controllable with in the plant by activating the company emergency team. The emergency may be due to:</p> <ul style="list-style-type: none"><li>Large scale fire / explosion in the plant</li><li>Heavy leakage of petroleum products / gas / chemicals</li><li>Collapsing of structure</li><li>High Winds / Cyclone</li></ul> <p><u>Level 3:</u> defines emergency requiring help from outside and or / affecting the general public (very remote chance)</p> <ul style="list-style-type: none"><li>Collapsing of wind turbine resulting in trapping of large number of employees.</li><li>Releases of LPG / Toxic gases in the neighbouring Industries</li><li>Electrocution</li><li>Earthquake</li></ul> <p>In order to deal with the level – 3 emergency aids has to be coped essentially by the external authorities. In such cases speed of communication is of extreme importance. The following will be immediately informed to external authorities.</p> <ul style="list-style-type: none"><li>✓ Name of the person making call and the name of the organization</li><li>✓ Exact Location of the emergency</li><li>✓ The wind direction</li></ul>
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	<ul style="list-style-type: none"> <li>✓ Nature of emergency</li> <li>✓ Extent of emergency</li> <li>✓ Expects (concentration etc.)</li> <li>✓ Area affected</li> <li>✓ Possible consequences</li> </ul>
Emergency Response	Is the initial response of the Company to protect its employees, workers and other persons who may be affected by the situation, its properties, and the environment from immediate harm.
Evacuation	The transfer of individuals at risk to safer place.
Hazard	Anything (natural or man-made) that has potential to cause harm.
Mitigation	The lessening or limiting of the adverse impacts of hazards and disasters.
Preparedness	Establishing and delineating authorities and responsibilities for emergency actions and making provisions for having the people, equipment, and facilities in place to respond when the need arises. Preparedness involves planning, training, exercising, procuring, and maintaining equipment, and designating facilities for emergency response.
Assembly Point	A safe zone away from a building marked in advance, where employees and visitors can gather in the event of an emergency evacuation while waiting for emergency personnel to respond.

#### 10.4 Emergency Response Team (ERT)

Apex level: HFE has constituted an apex level ERT at the Site level. Apex level ERT shall be led by EHS Officer along with support of Site Head Project. Composition of Apex level ERT is defined in **Table 10-1** along with their responsibilities (in **Table 10-2**):

**Table 10-1 Composition of Apex level ERT**

S. No.	Designation/Department	Name	Contact Details
1.	Main Incident Controller –EHS Manager - Project & Operations		Mobile: E-mail: E-mail:
2.	EHS Officer		Mobile: E-mail:
3.	Site Head Project		Mobile: E-mail:

**Table 10-2 Responsibilities of Apex Level ERT**

<b>Apex ERT</b>	<ul style="list-style-type: none"> <li>▪ Manage internal and external reporting to the top management.</li> <li>▪ Drafting emergency procedures detailing the measures to be taken in the event of an emergency.</li> <li>▪ Overall coordination with team during the emergency at the site.</li> <li>▪ Dispatch requests for assistance.</li> <li>▪ Communicate with employees, stakeholders, members of the community and the media, in the course of any emergency</li> <li>▪ Reporting to the investors as per the requirement.</li> </ul>
<b>Main Incident Controller</b>	<ul style="list-style-type: none"> <li>▪ Communicate the emergency event to Apex ERT.</li> </ul>

- Coordinate with ERT and EHS Officer during emergency.
- Ensure appropriate personal protective measures are readily made available during the emergency.
- Ensure that key personnel are called in and exercise direct operational control of those parts of the works outside the affected area.
- Issue authorized statements to the news media. Where appropriate, inform Head office and ensure that proper consideration is given to the preservation of evidence
- Control rehabilitation of affected areas on cessation of the emergency.

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**EHS Officer**

- Ensure overall implementation of ERP at the project site.
- Initiate a review of the emergency plan after an incident, drill, on-site process change, or change in the surrounding community that may alter the planned response.
- Incident reporting to the Company's ERT.
- Ensure mock drills and requisite trainings are conducted as per the plan at the site.
- Incident Investigation and reporting to top management.
- Arrange for head count at assembly point by deputing one (1) person accordingly to each assembly point, if required.
- Arrange for information of injured to their family members.
- Arrange for any outside assistance as required.
- Arrange for transportation of employees and injured.
- Liaise with Chief Officers of the Fire & Police services and with the experts on fire, safety, health etc. Provide advice on possible effects on areas outside the works and ensure the accounting for personnel.
- Arrange for photograph and guide for preserving evidence as required.

## 10.5 Roles and Responsibilities

Main Incident Controller with support of site incident controller and other teams of the site shall ensure the implementation of EPR Plan. Roles and Responsibilities of Company's site specific ERT team members are defined in **Table 10-3**.

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<b>Observer (Who first witnessed the emergency situation)</b>	<ul style="list-style-type: none"> <li>▪ Try to control by self, if it is within his knowledge to act a First Responder or has been trained as the First responder simultaneously inform to security.</li> <li>▪ Blow the emergency siren.</li> <li>▪ Inform Department Head or any senior authority available at the site including EHS Officer.</li> </ul>
<b>Main Incident Controller</b>	<ul style="list-style-type: none"> <li>▪ Relieve the work site incident controller from responsibility for overall control.</li> <li>▪ On declaration of a major emergency, ensure that the outside emergency services are called in, and where required that nearby firms are informed.</li> <li>▪ Ensure that key personnel are called in and exercise direct operational control of those parts of the works outside the affected area.</li> <li>▪ Maintain a speculative continuous review of possible developments and assess these to determine most probable course of events.</li> <li>▪ Direct the evacuation of plants in consultation with the works incident controller and key personnel.</li> <li>▪ Ensure that casualties are receiving adequate attention and arrange for additional help, if required. Ensure that relatives are advised.</li> <li>▪ Liaise with Chief Officers of the Fire &amp; Police services and with the experts on fire, safety, health etc. Provide advice on possible effects on areas outside the works and ensure the accounting for personnel.</li> <li>▪ Control traffic movement within the works and arrange for a chronological record of the emergency to be maintained.</li> <li>▪ Where the emergency is prolonged, arrange for the relief of personnel and the provisions of catering facilities.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ In the case of prolonged emergencies - involving risk to outside areas by wind-blown materials, contact the local meteorological office to receive early notification of impending changes in weather conditions.</li> <li>▪ Issue authorized statements to the news media. Where appropriate, inform Head office and ensure that proper consideration is given to the preservation of evidence.</li> <li>▪ Control rehabilitation of affected areas on cessation of the emergency.</li> </ul>
<b>On-Site Incident Controller</b>	<ul style="list-style-type: none"> <li>▪ Secure the safety of personnel and minimize damage to plant, property, and the environment.</li> <li>▪ Direct rescue and fire-fighting operations until the arrival of the outside fire brigade, when he will relinquish control to the senior officer of the brigade.</li> <li>▪ Ensure that the affected area is searched for unattended casualties.</li> <li>▪ Ensure that all fellow workers in the affected area evacuate to the appropriate assembly point and set-up a communication point and establish Radio/ Telephone/ Messenger contact (as appropriate) with the emergency control centre.</li> <li>▪ Pending the arrival of the works main incident controller, assume the duties of the post and in particular: direct the shutting down and evacuation of plant and are likely to be endangered by the emergency.</li> <li>▪ Ensure that the outside emergency services have been called in.</li> <li>▪ Report all significant development to the works main controller.</li> <li>▪ Have regard to the need to preserve evidence that would facilitate any subsequent enquiry into the cause and circumstances of the emergency.</li> </ul>
<b>Emergency Response Team (ERT)</b>	<ul style="list-style-type: none"> <li>▪ Manage internal and external reporting to the top management.</li> <li>▪ Drafting emergency procedures detailing the measures to be taken in the event of an emergency.</li> <li>▪ One/two member in ERT shall be trained first aider from reputed institutions like Indian Red Cross.</li> <li>▪ Dispatch requests for assistance.</li> <li>▪ Overall coordination with team during the emergency.</li> <li>▪ Shall also have procedures for delegation in the event that any member(s) of the team are unavailable during the emergency.</li> <li>▪ Communicate with employees, customers, stakeholders, members of the community and the media, in the course of any emergency.</li> <li>▪ Reporting to the top management as per the requirement.</li> </ul>
<b>Maintenance Team Leader</b>	<ul style="list-style-type: none"> <li>▪ Assess the emergency situation according to its gravity and direct firefighting / combating operations/plant operation/shutdown operations as needed to control the emergency.</li> <li>▪ Keep liaison with other coordinators for requirement of their services, keep in constant touch with works main controllers and feed him latest information of the situation.</li> <li>▪ Direct action to restore facilities, repairs, demolition as required under the circumstances</li> <li>▪ Preserve record and other evidence, which may be required for inquiry.</li> <li>▪ Apprise rescue coordinator of the situation and coordinate with him with the assistance of area operational staff to overcome the emergency / disaster situation within shortest possible time.</li> <li>▪ Get necessary equipment's like cranes, dozers, trucks, welding and cutting set etc. as needed for tackling the emergency and make available required personnel to operate above facilities.</li> <li>▪ Make sufficient number of contractor workers available to do civil jobs, like filling sandbags, making bunds, closing drains, excavation &amp; required for the emergency.</li> <li>▪ Keep workshops open with necessary personnel throughout emergency to cater any need for repairs of additional equipment.</li> <li>▪ Ensure shutting off supply of electricity to the affected areas if so require.</li> </ul>
<b>Rescue / Evacuation Team Leader / Security Officer</b>	<ul style="list-style-type: none"> <li>▪ Rush to the spot of emergency on receipt of message.</li> <li>▪ Assess the situation and co-ordinate rescue operation such as firefighting, evacuation of affected personnel, and isolation of affected area.</li> <li>▪ Inform immediately the works main incident controller, the gravity of situation and co-ordinate with works main controller for any outside help such as fire brigade, medical aid etc.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Inform works main controller, the number of people affected &amp; its probable effect in the surrounding.</li> <li>▪ Assess additional water availability and methods to use the same.</li> <li>▪ Keep liaison with surrounding establishments such as Industries as well as with Gujarat Fire services for additional help.</li> </ul>
<b>Welfare Team Leader</b>	<ul style="list-style-type: none"> <li>▪ Rush to the spot of emergency.</li> <li>▪ Assess the situation in consultation with operation and rescue coordinators.</li> <li>▪ Arrange for canteen services for personnel on duty as well as affected once.</li> <li>▪ Arrange for temporary shelters for those evacuated.</li> <li>▪ Assess law and order situation.</li> <li>▪ Arrange for help of security personnel for cordoning off the affected area, for firefighting / rescue help and evacuation of casualties.</li> <li>▪ Inform district authorities and get their help for evacuation, closing certain roads, for maintenance of law and order.</li> <li>▪ Keep the employees informed in township and seek their help if necessary.</li> <li>▪ Arrange for accounting of persons at Emergency assembly point.</li> </ul>
<b>Medical Team Leader</b>	<ul style="list-style-type: none"> <li>▪ Inform the hospital and medical officer to rush the medical emergency team. The team shall take charge of Medical Services on reaching the works.</li> <li>▪ Depute the trained first person on first aid post/ emergency control room.</li> <li>▪ Rush to the site with stretcher first aid equipment and trained first aid person team.</li> <li>▪ Get in touch with works main controller for any type of medical aid required.</li> <li>▪ Ensure availability of adequate first Aid medical help and co-ordinate for further medical help in Hospital/Nursing home.</li> <li>▪ Keep liaison with outside medical agencies for availability of adequate medicines.</li> <li>▪ Supervise the employees' trained in-first aid for rendering first aid and arrange to send the affected persons to hospital.</li> </ul>
<b>EHS Manager</b>	<ul style="list-style-type: none"> <li>▪ Set up Emergency Assembly Point.</li> <li>▪ Arrange to call outside help as required.</li> <li>▪ Instruct to stop production/office/site activity and evacuate the site, if required.</li> <li>▪ Understanding the evacuation procedure of the Site.</li> <li>▪ Ensure preliminary incident reporting to Admin Department and EHS Officer.</li> <li>▪ Ensure to provide requisite training to the employees.</li> <li>▪ Provide adequate support and resources with regard to emergency preparedness.</li> <li>▪ Declaration of emergency if situation goes beyond control.</li> <li>▪ Ensure overall implementation of EPR Plan at the project site.</li> <li>▪ Initiate a review of the emergency plan after an incident, drill, on-site process change, or change in the surrounding community that may alter the planned response.</li> <li>▪ Incident reporting to the Company's apex ERT.</li> <li>▪ Ensure mock drills and requisite trainings are conducted as per the plan at the site.</li> <li>▪ Incident Investigation and reporting to top management.</li> <li>▪ Arrange for head count at assembly point by deputing one (1) person accordingly to each assembly point, if required.</li> <li>▪ Arrange for information of injured to their family members.</li> <li>▪ Arrange for any outside assistance as required.</li> <li>▪ Arrange for transportation of employees and injured.</li> <li>▪ Liaison with external agencies and government agencies such as Pollution Control Board (PCB), Department of Industrial Safety and Health (DISH), Police etc.</li> <li>▪ Arrange for photograph and guide for preserving evidence as required.</li> </ul>
<b>Employees/ Workers</b>	<ul style="list-style-type: none"> <li>▪ Do not panic.</li> <li>▪ Assist in emergency response activities as directed by the controllers.</li> <li>▪ Complete required training and demonstrate an understanding of this procedure.</li> <li>▪ Familiar with the locations of alarm switches or alarm pull stations in their work and understand how to activate the alarm system.</li> <li>▪ Switch of electrical connection, if required.</li> <li>▪ Do not hide in toilet, cupboard, and confined spaces attention to facilitate evacuation.</li> <li>▪ Try cooperative with positive attitude in order to control emergency.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Assemble on designated assembly point in case of major incidence as directed by EHS Manager.</li> <li>▪ Directing the visitors and contractors to a place of safety.</li> </ul>
<b>Visitor</b>	<ul style="list-style-type: none"> <li>▪ Following activation of the emergency alarm, visitors should be directed to the nearest assembly point.</li> <li>▪ Visitors must remain there until they are given the instructions to stand down.</li> </ul>
<b>Senior management</b>	<ul style="list-style-type: none"> <li>▪ Take control of the onsite situation</li> <li>▪ Ensure to provide the compensation to the victims (as per company policy)</li> <li>▪ Inform the investors</li> <li>▪ Allocate necessary budget for response and recovery procedure.</li> </ul>

## 10.6 Emergency Contact

It is the responsibility of all the individuals in their respective areas to take the necessary safety measures to eliminate the possibility of the emergency and if at all it occurs limit its impact. The Company shall change the composition of ERT as per their requirements and shall add roles and responsibilities as per their business operations.

List of site specific Emergency contact numbers will be displayed at notice board of the project site (also different prominent locations at the site) and will be updated if any change in details reported. List of Emergency Contact Numbers shall be reviewed internally by the Site Head Project or EHS Personnel to ensure that changes in the any contact details shall be duly incorporated in the list.

1. Main Control Room
2. Police
3. District Authorities
  - Control Room
  - Superintendent of Police
  - DC Control Room & Flood Control Room
  - Women Helpline
4. Ambulance
5. Nearby Hospital
6. Security Control
7. Nearby Fire Brigade
8. In-house First Aider

## 10.7 Emergency Plan of Action

Emergency operations would be directed by the main incident controller assisted by other coordinators and helped by the field organization under him and each coordinator in their respective field.

### (A) Planning for Emergency:

- Prepare and display an **Emergency Evacuation Plan** indicating assembly points at prominent locations of the project site along with complete Emergency Contacts lists.
- Include an effective “**Emergency Alert/Alarm**” communication system.
- Establish and maintain a safe and **effective evacuation route** from the site.
- Install properly functioning Close Circuit Television (**CCTV**) Cameras covering all strategic locations
- Maintain **training records** of all emergency trainings.
- Maintain an **up-to-date daily list(s)** of all personnel on the site including visitors.
- Conduct regular “**Emergency Drills**” (including without limitation, fire safety drills and evacuation procedures) to be conducted at regular intervals and all employees trained on what to do in the event of an emergency.
- Practice complete **evacuation procedures** once a year/as per regulatory requirement.

- Appoint Designated **ERT** and publicize of their name and contact information at the site.
- Effective safety measures for at-risk categories of personnel (such as women, differently abled employees, etc.), at the workplace, and on work-related travel.
- **Emergency Exits and assembly area** should be clearly marked.
- Establish and maintain appropriate **first aid resources** and training at the site. Provide medical counselling and assistance to all employees as required.
- Test adequacy of **emergency lighting** arrangements and make repairs when necessary.
- Identify **local Doctors/Medical Centers** and tie up with the identified medical centers or ensure proper functioning of OHC wherever it is present.
- Every employee as a team is clear of his/her roles and responsibilities during emergency situations.
- Include appropriate medical aid, services and fire-fighting arrangements.

**(B) Emergency Event Reporting**

- Anyone who identifies/witnesses or is the first person to see an emergency scenario shall proceed immediately to report it to concerned Site Head Project /ERT Team.
- On receiving the information, main incident controller/incident site controller/ERT shall access the situation and immediately inform to Senior Management.
- Everyone shall be instructed that:
  - Before taking any action, be sure you are not endangering yourself;
  - Avoid unstable structures, electrical wires, toxic fumes, chemical spills, fire, etc.
  - Do not jeopardize your life or the lives of others in attempting to save personal or property.
- In reporting the emergency event/incident, be as precise as possible and make sure to provide, at least, the following information in a clear and understandable way:
  - Your name and Office location.
  - Exact location of the emergency scenario
  - Kind of emergency being reported.
  - Whether or not there are people injured or affected.
  - Number of people injured or affected.
  - Kind of assistance required.
  - Your contact details.

The responsible person for receiving the message shall acknowledge receipt and confirm understanding of the emergency message before hanging up the phone or finishing communication. In case of confirmed emergency, below mentioned action on site shall be adopted.

**(C) Emergency Control Centers**

Main Control room for emergency / disaster shall be established at the site from which the operation to handle the emergency shall be directed and coordinated. Alternate control room shall be established in the security office at main gate, in case of any problem in main control room. Internal Extension telephone no. of Main Control Room and internal Extension telephone no. of Control Room (Security Office) shall be displayed and provided.

**(D) Action On-Site**

The main incident controller shall take following action with the assistance of his/her staff/other key personnel and workers of different categories. The different aspects of action on site are given as under: -

- i) **Communication:** An electrically operated/portable siren/manual call points shall be used to communicate and terminate /call off the emergency to the employees and workers. Manually operated siren with 2 Km audible range shall also be made available in Emergency Control Center. The Incident Controller (Senior most Officer / Staff / shift in charge) present at the time of incident will declare the emergency after carefully assessing the severity of incident at site. He/ She shall order to communicate emergency to the plant personnel.
- a) **First Information of emergency:** Any employee noticing the major fire/accident shall inform to his section in-charge / shift in-charge and / or to emergency control center on defined extension numbers or by shouting FIRE.....FIRE...../ AAG..... AAG..... ETC.

- On getting the information and after assessment of the situation with section in-charge (site incident controller), the security in-charge shall announce the situation.
  - Section in-charge and /or security in-charge will alert all sections in the vicinity of emergency site and apprise of the situation.
  - Site incident controller and/or security in-charge will inform the works main incident controller, emergency coordinator and essential personnel on telephone with the help of telephone list. Telephone operator will assist the incident controller for contacting the key personals. Telephone list shall be made available with telephone operator.
  - Initially the information should be given to Works Main Incident controller (or his nominee) then to other external agencies such as Fire Brigade, Police, Medical unit etc.
  - The person giving the information should have clear idea and full details regarding the incident, and then only shall be able to ask for proper help.
  - Telephone list shall also be available at Security Office and reception.
- b) **Emergency Management:** The effective control and command during the emergency, the structure of organization should be developed precisely and very clearly. This includes the organizational aspect of the plan (as defined in section 4); clearly stating the line of command, each person's specific responsibilities, and organizational set up available to tackle the Emergency effectively. There will be single line of control and emergency scenario and response measures have been defined in *Section 7.2*.
- c) **Raising the alarm/Information of emergency:** Any employee noticing any of the Major accident/fire/ explosion or spill will inform to the shift in-charge of his area (Incident controller) and or to EHS Department /emergency control center on mobile numbers, The EHS Manager after confirmation from incident controller will announce the emergency.
- d) **Declaration of Major Emergency:** Incident controller will make efforts to control the emergency at site level and make the assessment of emergency situation. In case, the emergency situation is not controllable at plant level and evacuation/outside help is required, the situation shall be declared as **major emergency and shall make the emergency known to following teams:**
- Fire Brigade
  - Police,
  - Medical Service,
  - Administration,
  - Neighboring industry entered into the mutual aid contract
  - All key personnel outside the normal working hours
- ii) **Evacuation:** On declaration of major emergency, the office staffs, contractual workers/staff shall rush out through the safe passages and assemble at the assembly points after getting the information from their supervisors / In-charge.

### **EMERGENCY EVACUATION PROCEDURE**

Understand the emergency situation from Emergency Response Team (ERT) member and follow the instructions his instructions.

1. Do not waste your time in switching off equipment/computers / collecting your belongings.
2. Do not panic, run, walk brisk.
3. Do not try to overtake/push others while getting out.
4. Always walk on the left side of the staircase.
5. Assemble at the designated assembly points in your department queue.
6. Come out through the emergency Exit which is nearest to your work place.

**Note:** In case of fire/smoke, crawl to escape.

Use a wet handkerchief to cover your nose.

In case of earthquake, move out to the nearest open area. Do not assemble in the areas identified below any building etc. In case of earthquake, do not stand near glass windows and walls. *Detailed mitigation measures for all kinds of emergencies is defined in section 10.7.1.*

#### **Evacuation from turbine:**

In case of an accident, in which employee(s) are working in the nacelle or in the upper part of the tower, an evacuation may be necessary via direct descent from the nacelle to the ground using the emergency evacuation kit located in the nacelle. The equipment can be used for emergency evacuation of personnel in a harness, or stretcher evacuation of an injured person, if descent through the tower is impossible.

#### **Person Action**

##### **On-scene Person**

- Assess the situation
- Contact Site Management or EHS using emergency channel for help and provide them with the nature of injuries, turbine number and the location in turbine.
- If passage through the tower is impossible
  - Stay calm, make your way to the top of the turbine if possible and stay there until the rescue personnel arrive
  - Maintain communication with supervisor/rescue personnel
- Open, if necessary, hatches to ensure that fresh air is available.
- If it is necessary to evacuate the turbine – choose the safest way out.
- Secure and inspect rescue equipment.
- If time is available, read through the evacuation procedure and ensure everyone involved understands their responsibility /duty.
- Find suitable anchor point and prepare the equipment.
- Evacuate the turbine.
- Assist rescue personnel as needed
- Secure the incident scene / do not disturb accident / incident area

##### **Site Management**

- If outside medical help is needed contact emergency services and determine the meeting location if not the turbine.
- Contact everyone on Emergency Channel and notify them of the emergency and assign a person to meet the emergency service at the meeting location.
- Gather persons – Count Persons.
- When evacuated from the turbine, the casualty must be submitted to a medical examination at the hospital.
- Contact Project Manager once the situation is under control.

##### **Site EHS**

- Respond to the incident location and ensure scene is secured.
- Take notes about the incident and contact EHS Manager in order for them to initiate an initial report.
- Accompany the injured person to the clinic or hospital and wait until an initial diagnosis is given

\*\* Your Personal Harness shall be worn at all times in the nacelle unless a risk assessment has been carried out to justify removal.

All turbine kits shall have an evacuation harness included in the event of damage to primary working at heights harness.

#### **iii) Controlling the situation:**

- Having been informed of emergency the main incident controller, emergency coordinators, and all essential personnel shall reach the site.
- Main incident controller will assess the situation of emergency and direct the operations to control the situation. He will also direct both emergency and plant shutdown operations.



- All emergency coordinator will start the emergency control operation under the guidance of Works Main Incident Controller in accordance with duties and responsibilities assigned to them.
  - Fire and rescue team or any other respective team will start firefighting, rescue and fogging operations as necessary.
  - Depending upon the situation, Main Incident Controller will decide to inform and liaise with external authorities and neighboring industries for help.
  - All emergency coordinator will remain in contact with the works main incident controller.
  - Security department will make arrangement to control the vehicle and employee's movement.
  - **Attention to injured:** The Plant first aiders will immediately be summoned for giving first aid to the injured and they should arrange for hospitalization of the victim on the guidance of medical coordinator.
    - Welfare Person will make suitable drinking and food arrangements.
    - Maintenance team shall comply with following responsibilities:
    - Ensure electrical / mechanical isolation.
    - Depute fire pump attendant to operate and maintain fire pump.
    - Help plant operators to remove liquid spillage of toxic / flammable material and deal with vapor cloud if it is formed.
  - **Firefighting operation:** Trained firefighting workers and Security staff shall start fire-fighting Operation with the general guidance of Safety / Security Officer / Manager.
  - Security Service will:
    - Stop unauthorized entry.
    - Allow immediately the entry of emergency vehicle like fire brigade. Ambulance etc. and directs them to proceed to the affected area.
    - Receive the help under mutual aid and direct the persons of mutual aid to the affected site
  - Main Incident Controller shall declare the concerned area under emergency shut down and action will be taken by section in-charge and workers as per the procedure laid down with no knock on effect elsewhere on site.
  - Stores In-charge will:
    - Arrange to issue items/ equipment required during emergency.
    - Arrange to procure the material required for emergency urgently.
- iv) **Accounting for personnel:** A list of employees presents on duty; contractor workers and visitors shall be maintained on daily basis. Nominal rolls, which can be updated during the early stage of emergency, will be kept in the emergency control center.
- At the emergency control center, time office in-charge / his nominee shall collate the lists of personnel arriving at the assembly points with those involved in the accident. These should then be checked against the nominal roll of those believed to be on site, updated with known changes for that day.
  - Where it is possible that missing people might have been in the area of the emergency, the emergency controller shall be informed, and arrangements shall be made to organize further search.
- v) **Access to records:** In order the relatives of any casualties can be quickly informed, the lists of names and address of works personnel shall be kept in the emergency control center. These will be regularly updated to take account of changes in personnel addresses, next to kin and so on.
- vi) **Termination of emergency:** After vanishing of the danger to life and property, the Works Main Controller will assess the situation and declare the termination of emergency and siren for this purpose will be sounded.
- After declaration of the termination of emergency all key personnel will assemble in control room or as directed by the works main controller for planning for the rehabilitation.
  - All evidences of the occurrence will be maintained at site, and anything will not be disturbed / displaced to help the investigation and fact-findings.
  - Works main controller will direct salvage operation to minimize the further losses to life, property and environment.

- Arrangement for the rehabilitation and relief of affected employed will be made.
- vii) **Public relation:** Site Head Project will be responsible to make arrangements for the authoritative release of information during any emergency. He will act as sole source of information to the media, radio / television coverage Government official and to the public or relatives of the employees. Inquiry made to other employees / officials shall be directed to the above officials.
- viii) **Rehabilitation** The emergency will continue until all fires have been extinguished with no risk of re-ignition, when the escape has been stopped and the gas cloud safely dispersed. Even then, required care will be ensured when re-entering the incident area. Appropriate arrangements will be made for the Company and Govt. officials to initiate any inquiry into the situation regarding the collection of evidence before it is disturbed.
- ix) **Re-entry procedures:** After ensuring that no danger to life property and environment exists, Investigation shall be carried out to find out the root causes of occurrence and suggest remedial measures. The affected part of the plant / equipment / building and part thereof will be inspected, examined and tested. Environment of the affected area will be tested for the presence of accumulation of any dangerous substances. The key persons will be allowed to enter in the affected area with adequate care and personal protective equipment. After completion of maintenance and test of plant / machine / equipment, these will be run on trial followed with normal production. All activities during the emergency will be noted down for further improvement in the plan. Record of damage and repair to plant/ equipment / machine will be prepared and preserved for further reference.

### 10.7.1 Probable Emergencies and Response Procedure

HFE shall ensure that an Emergency Response Plan is prepared to deal with all the on-site emergencies which may arise in and around the project site.

#### **Probable Emergencies**

Pre-Construction and Construction Phase	Operation Phase	Decommissioning Phase
<ul style="list-style-type: none"> <li>• Fire at Site during temporary construction</li> <li>• Fire due to short circuit at the plant and equipment</li> <li>• Collapse of structure</li> <li>• Outbreak of endemic disease among a large section of construction workers due to contaminated drinking water, unhygienic conditions</li> <li>• Protests by the local community or other stakeholders due to grievances</li> <li>• Minor injuries during construction activities</li> <li>• Serious injury or death of employee or contracted worker at work due to non-work-related illness or work-related accident.</li> <li>• Onset of any natural disaster like earthquake.</li> </ul>	<ul style="list-style-type: none"> <li>• Fire due to short circuit at the plant and equipment</li> <li>• Collapse of structure</li> <li>• Protests by the local community or other stakeholders due to grievances</li> <li>• Minor injuries during O&amp;M</li> <li>• Serious injury or death of employee or contracted worker at work, due to non-work-related illness or work-related accident.</li> <li>• Onset of any natural disaster like earthquake.</li> </ul>	<ul style="list-style-type: none"> <li>• Fire due to short circuit at the plant and equipment</li> <li>• Collapse of structure</li> <li>• Protests by the local community or other stakeholders due to grievances</li> <li>• Minor injuries during dismantling activities</li> <li>• Serious injury or death of employee or contracted worker at work, due to non-work-related illness or work-related accident.</li> <li>• Onset of any natural disaster like earthquake</li> </ul>

Precautionary measures, Preparedness, Response and Recovery of all the possible emergencies which could occur at the project site are elaborated below in **Table 10-3**

**Table 10-3 Probable Emergencies, Response and Recovery**

Emergency/ Disaster	Preparedness	Response	Recovery
<b>Fire and Explosion</b>	<ul style="list-style-type: none"> <li>• Emergency Alarms as a warning system shall be provided</li> <li>• Appropriate number of Fire Extinguishers at easily accessible location shall be installed.</li> <li>• Location of all the fire extinguishers and type of fire each is designed to extinguish shall be marked.</li> <li>• Display evacuation plan of the site at conspicuous locations.</li> <li>• Fire Safety Training to Safety Personnel along with other staff at site level.</li> <li>• Train staff so everyone shall be familiar with procedures for fire and other emergencies.</li> <li>• Appropriate number of workers knows to operate the Fire Extinguisher.</li> <li>• Identification of Assembly Points on Wind Farm Map shall be done at site.</li> <li>• ERT shall ensure that proper fire safety measures are taken at the site.</li> <li>• SOP regarding all fire-fighting equipment along with their number and location shall be developed.</li> <li>• Employees/workers shall be well aware of all fire-fighting equipment available at their site.</li> <li>• Fire Fighting water retention tanks shall be constructed.</li> <li>Impermeability and</li> </ul>	<ul style="list-style-type: none"> <li>• Notify all personnel in the turbine to evacuate immediately. If personnel are incapacitated, attempt to rescue persons in the turbine/area.</li> <li>• In case of fire or smoke is generated near to smoke detector, the system will automatically on and sound the fire alarm.</li> <li>• Fire safety device sounds alarm shall be turned on immediately.</li> <li>• Only properly trained and authorized employees may attempt to extinguish a small fire.</li> <li>• If fire detected is not small, then the first person to notice the emergency has to run as messenger shouting <b>“FIRE! FIRE!” (AAG! AAG!)</b> and inform the Safety Personnel or concerned Department head/ERT. If the fire appears to be too large or is electrical based, adopt immediate Evacuation Plan.</li> <li>• All emergency exits shall be open.</li> <li>• Evacuate people to emergency assembly point.</li> <li>• Immediately roll call of the present workers and staff at one place.</li> </ul>	<ul style="list-style-type: none"> <li>• First aid to be provided for injured (if any).</li> <li>• Head count of employees/workers to be carried out</li> <li>• Monitoring of affected area looking for residual potential fires to ensure all fire threats have disappeared.</li> <li>• Head count of employees to be carried out by site head.</li> <li>• Ensure no documents/equipment and systems are damaged.</li> <li>• Degree of contamination of fire-fighting water to be evaluated through testing prior to disposal</li> <li>• Adequate disposal of the waste generated during the fire and fire-fighting water. Regulatory authorities will be consulted for safe disposal of fire waste.</li> <li>• EHS Officer will write the Report of Incident and submit it to the ERT.</li> </ul>

Emergency/ Disaster	Preparedness	Response	Recovery
	<p>durability need to be assured.</p> <ul style="list-style-type: none"> <li>• Fire Fighting pumps shall be installed powered by DG sets.</li> </ul>		
<b>Floods/ Tsunami</b>	<ul style="list-style-type: none"> <li>• Proper drainage system to be provided.</li> <li>• Regular maintenance and cleaning of drains.</li> <li>• Emergency power/generator and pump systems.</li> <li>• Flood emergency equipment supplied and required tools, to ensure that all require items are available in the event of a flood.</li> <li>• Training of employees/workers for flood mitigation.</li> <li>• Have backup systems available for use during emergencies, such as portable pumps to remove flood water, alternate power sources and battery-powered emergency lighting, located well above the high-water mark.</li> </ul>	<ul style="list-style-type: none"> <li>• Inform all employees and workers about the imminent danger of floods/tsunami.</li> </ul> <p><b>In Case of Heavy Rains and Flooding</b></p> <ul style="list-style-type: none"> <li>➤ Make decision to shut down the plant and related facilities if the situation demand.</li> <li>➤ In the case of extensive roof or window leaks or imminent flooding of ground areas, unplug electrical devices and secure all the equipment by moving or covering it. Employees shall stay in door.</li> <li>➤ Keep all the doors and windows tightly closed.</li> <li>➤ Switch off all electrical supply until the situation comes to normal if need be.</li> <li>➤ Ensure adequate communication facilities are made available.</li> <li>➤ Ensure that adequate facility w.r.t lodging /boarding is in place for the personnel handling emergency.</li> </ul> <p><b>In Case of Minor Flooding</b></p> <ul style="list-style-type: none"> <li>➤ Secure vital equipment, records, and chemicals (move to higher, safer ground).</li> <li>➤ Shut off all electrical equipment</li> <li>➤ Wait for instructions from security for immediate action.</li> <li>➤ Do not return to your work unless you have been instructed to do so by Authorized personnel.</li> <li>➤ Remove all important items from ground level and keep it at higher level.</li> <li>➤ Consider closure of area as required.</li> </ul> <p><b>In Case of Major Flooding</b></p> <ul style="list-style-type: none"> <li>➤ Evacuate site immediately.</li> </ul>	<ul style="list-style-type: none"> <li>• Use battery-powered lanterns or flashlights when examining site.</li> <li>• Examine walls, floors, doors, staircases, and windows to make sure that the building is not in danger of collapsing.</li> <li>• Service damaged machineries/turbines/equipment.</li> <li>• Take Photos as necessary for intimation to top management.</li> <li>• Service damaged septic tanks, pits, and water tanks as soon as possible, because damaged sewage systems cause health hazards.</li> </ul>

Emergency/ Disaster	Preparedness	Response	Recovery
		<ul style="list-style-type: none"> <li>➤ Follow instructions from authorized personnel for immediate action.</li> <li>➤ Seek necessary medical care at the nearest hospital or clinic.</li> <li>➤ Medical team to monitor hygiene and sanitation facilities and take steps to prevent spread of any communicable diseases.</li> <li>➤ Extra care shall be taken to chlorinate the drinking water.</li> </ul>	
<b>Earthquake</b>	<ul style="list-style-type: none"> <li>• Earthquake awareness sessions to include what to do when an earthquake strikes.</li> <li>• Train the employees on how to respond during the natural disaster.</li> <li>• Structure of the turbine shall be stable enough to tolerate earthquake till certain magnitude.</li> <li>• Structural stability certificate shall be ensured from the competent authority wherever applicable.</li> </ul>	<ul style="list-style-type: none"> <li>• Vacate the buildings to the emergency assembly point or nearest safest place.</li> <li>• Move away from temporary walls, partitions, freestanding, heavy objects, and glass objects.</li> <li>• If up-tower, personnel should remain in place and take cover.</li> <li>• Being outside may not guarantee your safety. Watch for falling trees, power lines, flying glass, ground fissures etc.</li> <li>• If someone faces difficulty to exit, attempt to take cover under fixed objects, or interior framing that may provide safety from falling objects.</li> <li>• Avoid being near any electrical units, flammable or combustible materials.</li> <li>• Do not use elevators in case of earthquake.</li> </ul>	<ul style="list-style-type: none"> <li>• Evacuate and immediately reach to the open area.</li> <li>• Take the head count and notify emergency personnel if someone is trapped or missing.</li> <li>• Do not allow people to re-enter the affected area until it has been inspected for hazards or structural damage.</li> <li>• Be prepared for aftershocks</li> <li>• Give first aid to the injured (if any).</li> <li>• Take Photos as necessary for intimation to top management.</li> <li>• Assess damage and undertake restorative measures and repairs.</li> <li>• Report to top management in case of severe damage.</li> </ul>
<b>Cyclone</b>	<ul style="list-style-type: none"> <li>• The emergency warning signals and alert notifications at the site to be provided.</li> <li>• Clear downpipes and storm drains regularly.</li> <li>• Ensure windows are fitted with shutters or metal screens and that shutters and locks are working.</li> <li>• Prepare an emergency storm kit containing things like a first aid kit, a torch, batteries, candles, matches, bottled water</li> </ul>	<ul style="list-style-type: none"> <li>• The ERT shall ensure all preventive measures are taken (such as all windows and doors are properly closed).</li> <li>• All employees and workers shall stay at such a place which is strong and cannot fall down.</li> <li>• Keep all documents, papers etc. safely inside shelf under lock and key.</li> <li>• Do not attempt to evacuate the building unless instructed to do so.</li> <li>• Security shall not allow anybody to go out of the site.</li> <li>• Switch off AC, Electrical lights, computer system, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Check any water has come inside due to heavy wind &amp; storm.</li> <li>• Check whether files/ papers /boxes, documents etc. are intact.</li> <li>• Check for electrical damages, short circuits etc.</li> <li>• Check for any place which has become unstable or unsafe.</li> <li>• Inform employees not to go to such areas and keep stickers of "NO ENTRY".</li> <li>• Review all operations carefully to ensure that systems in jeopardy are shut down.</li> </ul>

Emergency/ Disaster	Preparedness	Response	Recovery
	<ul style="list-style-type: none"> <li>• and an emergency contact list.</li> <li>• Establish regular contact with the local meteorological department.</li> <li>• Establish distances from storm in order to execute preparatory actions in a shorter time.</li> <li>• Appraise the installations and consider the consequences that the emergency might have on operations and personnel.</li> <li>• Check the availability of manpower, tools, batteries, non-perishable foods, and other materials that might be required.</li> <li>• Ensure the readiness of emergency vehicles, medical centre, medicines etc.</li> <li>• Metallic sheets, loose materials, empty drums, and other light objects shall be properly secured.</li> <li>• Flush drainage systems of tanks, tank farms and manifolds to be cleared.</li> <li>• Cranes to be secured and loading arms shall be lowered &amp; in locked position.</li> </ul>	<ul style="list-style-type: none"> <li>• Close All Big Shutter / Gates (Notice Displayed)</li> <li>• Remain calm and do not go outdoors.</li> <li>• If in case of unavoidable circumstances, when it is necessary to go out then ensure going in four wheelers i.e., jeep /bus etc. Do not travel in two wheelers.</li> <li>• Do not take shelter under any tree, temporary structures, hutments, etc.</li> <li>• Do not seal the office completely as the suction created by the difference in atmospheric pressure inside and outside can rip open a window or door by breaking window glass panes.</li> <li>• In case of any work at height, at a minor pre indication of high wind, work should be stopped immediately and the person working at height should get down through safe access.</li> </ul>	<ul style="list-style-type: none"> <li>• Take all necessary corrective actions for restoring normalcy.</li> <li>• Take special precautions in driving vehicles since the under-pavement could cave in due to the weight of automobile.</li> </ul>
<b>Medical Emergency</b>	<ul style="list-style-type: none"> <li>• Ensure the availability of first aid kit with all the relevant medicines.</li> <li>• Trained first aid staff.</li> <li>• Ability to identify symptoms.</li> <li>• Route to the nearest hospital should be known in case of emergency.</li> <li>• Ambulance should always be ready to take any</li> </ul>	<ul style="list-style-type: none"> <li>• Inform site EHS Officer immediately.</li> <li>• In case employee met with any injury first treat as per first aid protocols.</li> <li>• If serious, call ambulance or take him/her to the nearest hospital, contact site ERT team personnel in case of severe emergency.</li> <li>• Inform the family of employee/worker.</li> </ul>	<ul style="list-style-type: none"> <li>• Complete first aid treatment of the injured.</li> <li>• Check if any further assistance is required to the injured person.</li> </ul>

Emergency/ Disaster	Preparedness	Response	Recovery
	<p>emergency case to hospital.</p>		
<b>Total Electric/Power Failure</b>	<ul style="list-style-type: none"> <li>• DG Sets will be provided as an alternative source of power backup.</li> <li>• Adequate amount of diesel stored for emergency purpose.</li> <li>• Regular maintenance and servicing of DG Sets.</li> </ul>	<ul style="list-style-type: none"> <li>• Stay where you are and wait for further instructions.</li> <li>• Call for emergency services.</li> </ul>	<ul style="list-style-type: none"> <li>• Consideration to be given to the battery re-charge and/or replacement in both emergency lighting, and the alarm system.</li> </ul>
<b>Electric Shock</b>	<ul style="list-style-type: none"> <li>• Proper Insulation mat (<i>IS 15652:2006</i>) of appropriate voltage level shall be placed at all the electrical and control panel rooms.</li> <li>• Gloves with adequate working potential voltage shall be provided to electrical personnel.</li> <li>• Regular maintenance and servicing of electrical panels and equipment.</li> </ul>	<ul style="list-style-type: none"> <li>• Switch off main switch or push victim off electric wire with dry non-conducting material while standing on dry board or rubber materials.</li> <li>• Do not touch victim of electric shock until contact with the surface of the current is broken.</li> <li>• Follow the direction of ERT lead in line with the Occupational Health &amp; Safety Plan of the Company.</li> </ul>	<ul style="list-style-type: none"> <li>• EHS Officer will submit the incident Report to top management after review.</li> </ul>
<b>Road Accident</b>	<ul style="list-style-type: none"> <li>• Drivers shall have all the required permit for the vehicle such as Driving license, pollution under control (PUC) certificate etc.</li> <li>• Drive in the prescribed speed limits on various roads (onsite and offsite).</li> <li>• Always put on seat belts and other safety equipment before driving a vehicle.</li> <li>• Do not drink and drive.</li> <li>• Never use mobile phones or earphones while driving.</li> <li>• Know the traffic signs, signals, lights, and traffic safety rules before you hit the road.</li> <li>• Do not drive for long hours in a stretch.</li> </ul>	<ul style="list-style-type: none"> <li>• First-aid kit shall be provided in the vehicle, in-case of minor accident.</li> <li>• Call Ambulance/Police or take the injured to the nearest hospital.</li> <li>• Inform EHS Officer/Site Head Project.</li> </ul>	<ul style="list-style-type: none"> <li>• Investigation shall be done to know the cause of accident.</li> <li>• Write an accident/Incident Report.</li> </ul>

Emergency/ Disaster	Preparedness	Response	Recovery
	<ul style="list-style-type: none"> <li>Raise Awareness about Road Safety Issues</li> <li>Driver shall be made aware about the hazard associated with material being transported.</li> </ul>		
<b>Bomb Threat / Security Threat</b>	<ul style="list-style-type: none"> <li>Site level ERT familiarity through training.</li> <li>Rapid ERT response.</li> <li>High ratio of employees trained as first aiders.</li> <li>Employees trained in the issues associated with injuries sustained in an explosion/blast.</li> </ul>	<ul style="list-style-type: none"> <li>Evacuate to safe emergency assembly point.</li> <li>First aid response based on primary injuries.</li> <li>If receive a bomb threat: <ul style="list-style-type: none"> <li>Do a quick visual inspection of your area.</li> <li>Do not touch or move suspicious objects.</li> <li>Do not use radios, pagers, or cell phones as they can trigger an explosive device.</li> </ul> </li> <li>Finding a bomb/suspect parcel: <ul style="list-style-type: none"> <li>Do not open.</li> <li>Do not immerse in water.</li> <li>Do not put in confine space e.g., filing cabinet.</li> <li>Do not carry through congested area.</li> <li>Carry to isolation area.</li> </ul> </li> <li>Evacuation from building if required.</li> </ul>	<ul style="list-style-type: none"> <li>Check for all injured people and provide them first-aid. If required call ambulance.</li> <li>Check for all the damage occurs at site.</li> <li>Initiate recovery, reporting and Notification process, debrief and review the report.</li> </ul>
<b>Blast/ Explosion</b>	<ul style="list-style-type: none"> <li>Maintenance of key equipment</li> <li>Rapid deployment of emergency In-charge response</li> <li>First aid training for workers and consideration for treating primary injuries</li> </ul>	<ul style="list-style-type: none"> <li>Do not light matches.</li> <li>Move well away from the site of the hazard to a safe location</li> <li>In case of blast in Air compressor</li> <li>Maintenance of air compressor.</li> <li>Rapid deployment of emergency In-charge response.</li> <li>First aid training for workers and consideration for treating primary injuries</li> <li>Take cover under sturdy furniture and/or material or leave the area/building if directed to do so by ERT Team.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure site is preserved for investigation.</li> <li>Initiate access Environmental Action Plan as required.</li> <li>Write an Incident Report.</li> </ul>
<b>Terrorist Attack</b>	<ul style="list-style-type: none"> <li>Proper Evacuation plan and communication services.</li> <li>Proper first aid facility in case of injuries by attack.</li> </ul>	<ul style="list-style-type: none"> <li>In case any terrorist act is acknowledged, inform ERT and follow the evacuation procedure.</li> <li>Contact emergency services, emergency call to notify neighbours.</li> </ul>	<ul style="list-style-type: none"> <li>Check for all the injured person and provide them first-aid. If required call ambulance.</li> <li>Check for all the damage occurred at site.</li> </ul>



Emergency/ Disaster	Preparedness	Response	Recovery
		<ul style="list-style-type: none"> <li>Hand control over to attending emergency services.</li> </ul>	<ul style="list-style-type: none"> <li>Initiate recovery, reporting and Notification process, debrief and review the report.</li> </ul>
<b>Pandemic Disease – Like Covid 19<sup>17</sup></b>	<ul style="list-style-type: none"> <li>Hand washing facility to be provided.</li> <li>Adequate amount of sanitizer shall be made available at the site.</li> <li>Provide proper PPE to all the employees.</li> <li>Ensure that all people shall wear face mask covering mouth, nose and chin while working during the pandemic outbreak.</li> <li>Sanitization of the site from time to time.</li> <li>Maintaining physical distance between the people working at the site.</li> <li>Provide awareness to all the employees to reduce the spread of disease.</li> <li>Establishing more frequent and enhanced cleaning and disinfection (including touch points such as toilet seats, locks, flushes, grab rails and hoists) and waste disposal.</li> <li>Limiting the number of cubicles and urinals available in a block of toilets, to promote physical distancing.</li> <li>Bio-metric attendance and physical frisking to be discontinued.</li> <li>Canteen should be function at 50% seats.</li> <li>Policy on Work from home during Pandemic shall be</li> </ul>	<ul style="list-style-type: none"> <li>If any employee/worker having any symptoms of COVID (fever, difficulty in breathing, cold etc. or as declared by the health agencies), shall immediately inform the concerned person, and keep his/herself in isolation.</li> <li>He/she shall contact nearby COVID specific hospital and get tested for Covid-19.</li> <li>The person shall be kept in isolation until the report comes.</li> <li>People came in contact with the COVID affected person, they shall quarantine<sup>18</sup> themselves for 14 days.</li> <li>Necessary direction issued by the health departments shall be followed.</li> </ul>	<ul style="list-style-type: none"> <li>Whole workplace or site shall be sealed for minimum one (1) day for complete sanitization.</li> <li>Initiate recovery, reporting and Notification process, debrief and review the report.</li> <li>Lay down a recovery plan and implementation of business continuity plan</li> <li>Communicate with respective authorities for possible opportunities of operation. Direction of Health department shall be followed.</li> </ul>

<sup>17</sup> Infectious disease caused by the new coronavirus SARS-CoV-2 discovered in 2019.

<sup>18</sup> Quarantine is “a strict isolation imposed to prevent the spread of disease.

Emergency/ Disaster	Preparedness	Response	Recovery
	<p>drafted and encouraged where possible.</p> <ul style="list-style-type: none"> <li>During construction phase all the above precaution shall be taken by workers to reduce the chance of spread of the disease.</li> </ul>		
<b>Public Unrest</b>	<ul style="list-style-type: none"> <li>Engage all affected stakeholders from time to time.</li> <li>Implementation of Stakeholder Engagement Plan to avoid any conflict.</li> <li>Implementation of efficient Grievance Redressal Mechanism.</li> <li>Hold meetings with project affected people from time to time to resolve petty conflicts.</li> </ul>	<ul style="list-style-type: none"> <li>Management to be alerted immediately.</li> <li>Situation to be assessed based on type of personnel involved.</li> <li>Appropriate Government Authority to be informed.</li> <li>Legal status of the public unrest to be assessed.</li> <li>All security measures to be activated.</li> </ul>	<ul style="list-style-type: none"> <li>The public unrest propaganda to be countered by clarifying management points in hand-outs /circulars.</li> <li>Work shall resume</li> <li>If it was activated for a workplace violence situation, the team will intimate the Head – HR to initiate disciplinary action procedures</li> </ul>

## 10.8 Post Emergency- Investigation and Reporting

Accident/Incident Investigation – Site level ERT team will form the investigation team minimum of three (3) representatives, one (1) representative will be a person who has first observed/reported the incident, one (1) incident site controller where the incident occurred and one (1) will be EHS Officer.

The detailed incident investigation shall be carried out by the Site specific ERT along with main site controller and investigation team to find out the cause of the incidents. Incident investigation report shall be prepared by the ERT and submitted to top management of the company. As a minimum, the report will include the following information:

- Emergency event detailed description (date, time, exact location, detailed description of what happened, witnesses, involved personnel, consequences and impacts).
- Detailed summary of management of response and corrective measures implemented.
- Root cause(s) that led to the unplanned event.
- Established steps and measures implemented to avoid reoccurrence.
- Improvement opportunities identified to be implemented.
- Conclusions, comments or additional information as required.
- Attachments (including available evidence, pictures, plans, witness statements, etc.).

Report shall be completed within 48 hours on starting the investigation. Any serious onsite incidents that result in loss of life, material effect on the environment, or material breach of law will immediately be reported to higher management and investors. Notification of Major Accident shall be submitted to the Labour department.

## 10.9 Preventive Support

### 10.9.1 Training Awareness

All employees and workers at the site shall be made aware of EPR by means of appropriate training sessions organized by the Site specific EHS personnel. The EHS Officer shall provide the training to all the employees on ERP and ensure the implementation of the plan at the site. Training is to include, but not limited to the following:

- Type of potential emergencies
- Emergency contacts and procedures
- Roles and duties in disaster response and recovery
- Emergency evacuation - routes and assembly points
- Location and proper use of fire extinguishers
- First aid management
- Medical and environmental emergencies
- Handling of Medical Devices related emergencies
- Communication during emergency
- Selection and procedures for using personal protective and emergency equipment.
- Emergency Reporting Procedure.

Adequate posters and Notices throughout the Site shall be displayed for spreading awareness to the employees/workers and the contractors.

### 10.9.2 Mock Drills

Fire/emergency mock-drills shall be carried out at least once in three (3) months to check the effectiveness of the emergency response as per the Emergency Response Plan. Active participation of all workers in mock drill shall be ensured by the EHS department and respective department head. The objective of drills includes evaluation of the following:

- To describe the procedure for mock drill for safety on emergency.
- To provide an orderly emergency response plan for all occupants.
- To ensure all exit routes, emergency staircases are not obstructed and can be used in an orderly fashion during emergencies.
- To ensure fast, organized and smooth evacuation of buildings during emergencies.
- To train fire drill and emergency evacuation Officers to conduct their duties successfully.
- To test the working conditions and effectiveness of all fire and emergency equipment's for all buildings.

#### **Action**

1. Detection/Alertness of Fire Hazard
2. Switching On Fire Alarm
3. Assembling at Emergency Area
4. Head Count
5. Extinguishing the Fire
6. Restoration of Normal Situation

Fire-fighting drills shall be conducted as often as necessary and at least once in every 2 months.

Records of each mock drill and fire-fighting drill shall be maintained by the EHS Officer. EHS Manager shall review the effectiveness of the drills.

### 10.9.3 First Aid

First aid boxes shall be kept at specified points and dispensary.

- ✓ 2 Nos. of Trained first aiders shall always be available at the site in every shift.

- ✓ The contents of first aid box shall be regularly checked and replaced as necessary by the Dispensary.

#### 10.9.4 Continuous Surveillance of Operations

All operations are continuously kept under surveillance and the Operational Control Procedures/Do's and Don'ts are followed for preventing any emergency. Besides, a meeting of the Management Review Committee shall be convened to analyze the actions taken and loss encountered, suggesting / incorporating any corrective and preventive mechanisms and for modifying the Emergency Response Plan. As required, further training shall also be provided to the personnel.

**Training to ERT Team** - Advanced training shall be given to the ERT members. As per the training requirement, HFE may also engage external consultant for providing specialized training. The amount, type and frequency of training for employees and ERT team members each shall be defined in training calendar. Training shall be provided regularly or in the following situation:

- For new employees/workers at the time of their induction
- For existing employees when there is a change in their duties.
- When new emergency control equipment of material is introduced
- When emergency procedures are revised
- When drill indicates need for improvement.

EHS Officer will ensure all training that is conducted will be documented, and that refresher training will be conducted as deemed necessary or when the plan has been revised.

#### 10.10 Review

The effectiveness of the plan and its implementation on the project site shall be monitored and reviewed on regular basis. The EPRP shall be reviewed annually and updated as necessary to reflect changes in emergency personnel and site changes which impact on the Emergency Plan. Reviews should occur following any exercise, incident or change in process, chemical or equipment.

#### 10.11 Record Keeping

- Mock drills records. (Observation report/Photos/Video recordings etc.)
- Internal and external training records.
- List of trained first aiders.
- Emergency Incident reporting.
- Equipment inspection and maintenance schedule.
- Training records shall be maintained in the training database or in the EHS files.

#### AMENDMENTS IN EPR Plan

The latest versions of the Documentation Format must be used at all times. This page needs to be updated whenever there is a change in the version number of the documents.

S. No.	Date	Version	Details of Amendments



## 11 APPENDIX K: Traffic Management Framework

This transportation and traffic management framework is intended to serve as a guideline for preparing traffic management plan at the respective Project Sites. Each Project Site should customize the traffic management plan with relevant details as per site specifications.

### 11.1 Scope

HFE is responsible for managing sound traffic inside the premises and neighbouring property that might get impacted due to its activities. This plan applies to all vehicles carrying out tasks and services within and outside of HFE premises.

- Traffic Management Plan will include information on the following:
- Traffic Management inside the Plant
- Traffic Management for the transportation of raw material and movement of staff
- Traffic Management for pedestrian
- Any effect on existing neighbouring property traffic or access

### 11.2 Applicable Reference Framework

- Ensure that all vehicles used by HFE, and its contractors comply with the requirements of the motor vehicles Act, 1988 (59 of 1988) and the rules frame there under.
- Ensure that a driver of a vehicle of any class or description operation for HFE holds a valid driving license under the Motor Vehicle Act, 1988 (58 of 1988).

### 11.3 Management Framework

The traffic management plan for HFE will include the following elements:

- Access route management for transportation of construction material and waste during construction phase and other raw material during operation phase
- Driver's training
- Vehicle management and maintenance
- Parking
- Community liaison and safety; and
- Mitigation Measures

Construction phase will involve transportation of construction material, equipment, and manpower to the Site. During operation phase, minimal vehicular movement is expected. Personnel movement to and from site for operation and maintenance purposes is expected.

#### 11.3.1 Access Route Management

The access route to the Project location needs to be identified at the preliminary stage of feasibility and site selection. The route should be selected based on the following parameters:

- Minimum distance from the nearest arterial road
- Adequate width of the road
- Height clearance of the road along the route especially related to electric poles, lines, and vegetation; and
- Turning to the access road from the nearest arterial road to be maintained taking into consideration commuter's safety.

Access road to be regularly monitored and maintained. Tree branches and thorn bushes to be cleared on regular basis. Condition of the road to be reviewed on a regular basis to ensure there is no traffic related issues during construction and operation phase. EPC contractor during construction phase and later operations team to conduct Hazard Identification and Risk Assessment (HIRA) to predict any traffic related scenario that may cause congestion or road accident because of the project activities. Contingency plan should be put in place in case of any HIRA component has been determined to have a higher likelihood of occurrence.

### 11.3.2 Vehicle Management and Maintenance

To ensure that accident rates and the overall transport fuel consumption is minimised, HFE will ensure that the vehicle fleet working on the project (whether directly for the contractor or for the contractor's subcontractors or HFE own fleet) is maintained according to the manufacturers' specifications. Refer Vehicle Inspection Checklist.

HFE will ensure the following in respect of vehicle maintenance, noise, and emission standards:

- All vehicles to be regularly maintained so that their noise and emissions do not cause nuisance to workers or local people
- An up-to-date database of all vehicles to be maintained. The database to contain details about the periodical maintenance, schedule of maintenance, vehicular emission and noise emission testing done as per Indian regulatory requirements, copy of PUC certificates etc
- Routes to be selected to minimize nuisance to residents from noise and emissions
- Avoidance of passage through and near settled areas during night-time hours
- All vehicles to be maintained so that their noise and emissions do not cause nuisance to workers or local people
- New vehicles to comply with emission standards in force on the purchase date
- Older vehicles to be maintained so that noise and emissions levels are no greater than when the vehicle/equipment was new
- Oil and fuel leaks to be addressed within 24 hrs of observation or reporting on any vehicle
- All heavy vehicles like JCB, cranes, battery operated trolleys etc. to be provided with reversing siren and locked.
- Any spillage and leakage will be informed to the driver concerned and the maintenance team for timely rectification.

### 11.3.3 Parking

The parking of construction vehicles shall be prohibited on community roads in the vicinity of the Plant. A dedicated parking area will be provided within the project premises or a suitable location for the private vehicles near the site.

During operation phase, vehicles will not be allowed to park anywhere else outside the dedicated parking area. Parking area will be provided with oil and fuel adsorbent materials or drip trays in case of any leakages.

### 11.3.4 Community Liaison and Community Safety

Traffic safety in local communities will be a high priority for HFE. It will be ensured that communities are advised in advance of project progress and nearby term activities where transport issues have the potential to impact local communities.

Local community to be made aware of the increased traffic requirements from the project both construction and operation phase and mitigation / management measures in place to minimize the impact on the community.

### 11.3.5 Mitigation Measures

HFE will ensure to minimise the use of road transport wherever possible by efficient transport planning. Significant efforts will be made to ensure that materials will be conveyed in such a way that their transport does not cause significant or undue adverse environmental impacts. To minimise the disruption, following measures will be adopted during construction phase:

- Routes for use by construction traffic to be planned to minimize impact on residential areas and unsuitable parts of the road network
- Provision of dedicated path within the site for exclusive entry and exit of the construction vehicles
- Ensure daily management of construction related vehicles and restricted vehicular movement during night-time. Also, to ensure that vehicles follow all traffic rules
- Vehicle movement and parking within the premises shall be managed properly to avoid accidents
- Necessary training to the driver of construction vehicles for speed restrictions and to crew members on 'Do's and Don'ts' during construction vehicles movements; · Construction vehicles to follow timings as per local traffic norms for transportation of material. Heavy vehicles to be strictly adhere to timings for entry and exit.
- Clear signs, flagmen and signal posts to be set up as necessary
- Clear road markings like reflective paint and signs (such as entry point, exclusion and safety zones, parking and no parking zones, speed limits, and vehicle crossings) should be used to alert pedestrians and vehicle operators of traffic hazards in the plan
- Appropriate supervision to be provided to control flow of traffic when machinery needs to crossroads
- Ambulance and fire services to be consulted regarding road diversions. Road diversions to not increase the response time of these services to local communities
- Where roads used by children to reach schools are used by construction traffic, road safety education to be provided at schools as well to the local community. Vehicle traffic to be 153 accommodations during the periods when children are travelling to and from schools falling on traffic routes
- Appropriate speed limits (20-30km/hr) on community roads for various motor vehicles to be determined as part of the traffic management based on type of roads available end-route the location to and for of the project component where construction material is to be transported project; and
- Where there is the potential for cumulative impacts from congestion and related impacts from construction traffic to settlements near or end-route to the project component locations, transport movement will be carefully considered to accommodate disturbance impacts.
- Adequate lighting is provided within the Project Site premises.

Following will be implemented during operation phase to ensure that there is no adverse effect on the surrounding road:

- Random checking and CCTV cameras at entry gates shall be provided for monitoring the vehicle movement as desired
- Dedicated parking area will be provided
- A proper traffic management plan will be implemented to mitigate adverse impacts, if any on existing traffic and transport scenario
- Improvement and maintenance of all roads
- Minimum number of intersections
- Traffic islands, signals, signs, and markings for smooth flow of traffic
- All drivers to be trained and evaluated in defensive driving and off-road vehicle operations
- Traffic Warden inside the Plant to regulate the traffic flowing from the project on road
- Speed on the internal road shall be 30kmph and on the turns shall be 20kmph. Speed tables will be provided near the entrance/exit point to control traffic and regulate speed of vehicles
- Pedestrian Crossing Table will be provided and marked along with signage within the Plant.



## 11.4 Roles and Responsibilities

Responsibilities specific to the traffic management are listed below:

- Communicating transport management procedures to all contractors managing transport operations during construction phase
- Co-ordinating the preparation of management plans at micro-level, if required and, reviewing and approving the Contractor plans before allowing the commencement of work
- Securing a periodical updated listing of all transport vehicle fleet details and their corresponding environmental regulatory compliance details with regards to emission and noise from the project contractors
- Providing advice on transport management principles, policies, and procedures, as required
- Implementation of training programmes to ensure an appropriate level of competency of personnel with respect to traffic and transport management, with specialist level of training for those exposed to or directly involved in traffic and transport management activities
- Auditing traffic and transport management records and in the event of serious breaches, determining corrective action for non-compliance, and identifying opportunities for continuous improvement; and
- Working internally, and with contractors, to accommodate traffic generation.

## 11.5 Training

IFC Performance Standards and General EHS Guidelines requirements and Indian regulatory requirements specify the requirements for driver training. Unauthorised passengers in project related vehicles will be strictly prohibited. Driver qualifications, skills of drivers, driver license and contractor's driving assessors will be checked in accordance with the contractor's approved training requirements on monthly basis.

The following issues and documents are to be addressed during driver training in a language (Hindi or local language) as is mostly understood by drivers:

- Journey Management Plan
- EHS&S Standards and Practices
- National and local legal requirements to drive a vehicle; and
- Any additional requirement for project drivers.

## 11.6 Records

The following checklists/ records are to be maintained monthly by Site Safety/EHS Officer present at the site. Any discrepancies must be flagged, and relevant action should be taken.

### 11.6.1 Driver Safe Practice Checklist

S. No.	Safe Practice	Remarks
1.	Only operate vehicles if you are competent and authorised to drive them	
2.	Do not drive when your abilities are impaired by ill health, poor vision, prescribed/illegal drugs, or alcohol	
3.	Make sure you fully understand the operating procedures of the vehicles you control	
4.	Know the site routes and follow them. Take care at pedestrian crossovers	

S. No.	Safe Practice	Remarks
5.	Understand the system of signals used on site	
6.	Visiting drivers: seek appropriate authority to enter the site and operate vehicles	
7.	Know the safe operating limitations of your vehicles, particularly relating to safe maximum loads and gradients	
8.	Carry out daily checks on your vehicles and report all defects immediately to supervisors	
9.	Follow site procedures and comply with all site rules	
10.	Do not drive at excessive speeds	
11.	Wear appropriate PPE when out of the vehicle	
12.	Ensure that windows and mirrors are kept clean and clear	
13.	Keep the vehicle tidy and free from items which may hinder the operation of vehicle controls	
14.	Do not allow passengers to ride on vehicles unless safe seating is provided	
15.	Park vehicles on flat ground wherever possible, with the engine switched off, the handbrake and trailer brake applied and where necessary use wheel	
16.	Do not reverse without reversing aid or banksman assistance	
17.	Where visibility from the driving position is restricted, use visibility aids or a signaller. Stop if you lose site of the signaller or the visibility aids become defective	
18.	Do not remain on vehicles during loading operations, unless the driver's position is adequately protected	
19.	Ensure loads are safe to transport	
20.	Do not attempt to get on or off moving vehicles	
21.	Do not adjust with the engine running and guards removed	
22.	Do not smoke during refuelling operations	
23.	Do not use a mobile phone whilst driving on site	

### 11.6.2 Truck Inspection/Vehicle Inspection Checklist for hire vehicles

<b>Date:</b>	<b>Name of Site</b>
<b>Name of driver:</b>	<b>Registration number:</b>

**Contracted company:**

The Contracted transport truck driver is responsible to check the condition of all applicable items as Excellent, Acceptable or Unacceptable. This inspection is to be executed at the safe holding area for contracted Trucks. If condition of the Truck and Trailer are noted as Unacceptable, indicate the Plate Number under remarks. Ensure Trucks and Trailers are inspected prior to the commencement of any loading or unloading activity.

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**Grading scale**

Excellent	Acceptable (A)	Unacceptable (U)
Heavy Equipment Driver	Tractor	Trailer
Valid Driver Licence		
Working Knowledge of English		
Personal Protective Clothing		
Behaviour Attitude		

**Additional**

YES	NO	YES	NO
	Avoid night transportation.		
	Avoid a sort of cut (follow the educated road)		
	Respect speed limit		
	<ul style="list-style-type: none"><li>Any nonessential personnel with Driver</li></ul>		<ul style="list-style-type: none"><li>Desert Move</li></ul>
	<ul style="list-style-type: none"><li>Follow internal traffic management plan</li></ul>		<ul style="list-style-type: none"><li>Highway Move</li></ul>
	<ul style="list-style-type: none"><li>Was Speed limit obeyed</li></ul>		<ul style="list-style-type: none"><li>Acceptable Load Width</li></ul>
			<ul style="list-style-type: none"><li>Acceptable Load Length</li></ul>

Remarks:

Assessed by

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**Signature**

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**Name**

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**Designation**

## 12 APPENDIX L: Contractor Management Plan

Contractors and Contractual workers are a critical component of the working of HFE and its project specific operations, especially during construction phases. The key contractors for HFE include construction or civil contractors, labour contractors, contractors for operation and third-party suppliers and vendors. HFE operations and employees are governed by its internal policies and the ESG MF, and the contractors and contractual workers are governed by their Contractual Agreements. Thus, to ensure that contractors and subsequently contractual workers undertake work in keeping with the overall objective of HFE ESG MF, it is important to put in place a contractor management system. This system shall be applicable to all contractors that are recruited at Hero Future Energy, at the corporate level or plant level and shall be applicable to the construction, operation, and decommissioning phases of the Renewable energy portfolio projects of Hero Future Energy.

HFE engages with Contractors and Suppliers for various requirements during construction and operations stages in the project lifecycle. For common understanding, the roles and definition of each of them are defined below:

- **Contractors:** Contractors are hired during construction/operation/decommissioning stages of the plants. They comprise of:
  - **EPC contractors** providing services related to engineering, equipment, machinery and other construction, erection works along with manpower during construction and operational phase
  - **Supply vendor** is an entity that sells goods or services to HFE. A supply vendor is usually involved in the supply chain, which is the network of all the parties involved in the creating and sale of a product.
  - **Service vendor** is a type of vendor that offers services to HFE, rather than goods. A service vendor can provide various kinds of services, such as cleaning, consulting, accounting, legal, marketing, IT, etc.
  - **O&M Operators** are operators who are responsible for the operation and maintenance of a project. They usually have a contract with HFE, to provide O&M services for a fixed period and a fee.
  - **Manpower Contractors** engaged for MMS, Module erection, electrical work, loading/unloading of products/ goods, housekeeping, civil and fabrication works, security services providers, etc.

Selection of Contractors, Vendors and Service Providers (Housekeeping, Security, etc.) at HFE takes place at the Head Office as well as by the project site, depending on the requirements. Grading of existing suppliers and contractors is already in place at HFE based on aspects of price, service quality and time, etc. and whenever need arises, the existing Suppliers and Contractors are considered and an RFQ is floated.

Thus, to ensure that contractors and subsequently contractual workers undertake work in keeping with the overall objective of the HFE ESG MF, it is important to put in place a contractor management system. This system is applicable to all contractors and thereafter contractual workers that are recruited at the plant level and the HO.

### 12.1 Purpose of the contractor management plan

The purpose of this Contractor Management Plan (CMP) is to establish a comprehensive framework that governs the selection, management, and oversight of contractors involved in HFE's project(s). This plan is guided by the principles of environmental and social responsibility, health and safety, and the adherence to applicable local and international standards, including the IFC's PS.

## 12.2 Scope and Applicability

This plan is applicable to all contractors engaged in activities associated with HFE, including construction, operation, and maintenance phases. It encompasses environmental and social considerations, health and safety protocols, community engagement, and compliance with regulatory requirements.

The scope of this contractor management plan covers:

- **Contractor Selection and Prequalification:** Criteria for the selection and prequalification of contractors, ensuring alignment with environmental and social standards
- **Contractor Environmental Social and Governance (ESG) Management Framework (MF):** Requirements for contractors to develop and implement an ESG MF that aligns with IFC PS and other applicable standards
- **Health and safety:** Protocols for the development of a Health and safety Plan, hazard identification, and emergency response procedures to ensure the well-being of workers and local communities
- **Community Engagement:** Strategies for engaging with local communities, establishing a grievance mechanism, and promoting awareness and understanding of the project's environmental and social aspects
- **Quality Assurance and control:** Procedures for ensuring the quality of project components, inspection, testing, and non-conformance corrective actions
- **Sub-contractor Management:** Protocols for the prequalification and approval of subcontractors, and monitoring and evaluation of their environmental and social performance
- **Monitoring and Reporting:** Development of an environment and social monitoring program, regular reporting requirements, and incident reporting and investigation procedures
- **Training and Capacity Building:** Strategies for identifying training needs, implementing training programs for contractors and sub-contractors, and continuous improvement initiatives
- **Documentation and Recordkeeping:** Requirements for maintain documentation and records related to contractor activities, environmental and social performance, and health and safety
- **Communication and coordination:** Protocols for internal and external communication, coordination with regulatory authorities, and a stakeholder communication strategy
- **Audit and Review:** Procedures for conducting internal and external audits, periodic reviews of contractor performance, and the implementation of corrective and preventive actions.
- **Closure and Decommissioning:** Planning for the closure of the project and decommissioning activities, including post-project monitoring and reporting.

## 12.3 Roles and Responsibilities

Establishing clear roles and responsibilities is fundamental to effective contractor management. This section outlines the key stakeholders and their respective roles in ensuring the successful integration of contractors into the project.

### 12.3.1 HFE's ESG MF Manager Responsibilities

HFE assumes several crucial responsibilities to facilitate the seamless collaboration with contractors

- **Contractor Selection and Prequalification:** Establish clear criteria for the selection and prequalification of contractors, considering factors such as experience, expertise, environmental and social performance, and adherence to safety standards.
- **Contract Development and Approval:** Work with legal and procurement teams to develop comprehensive contracts that clearly outline project expectations, environmental and social responsibilities, health and safety requirements, and compliance with applicable standards

- **Monitoring and reporting:** Establish mechanisms for ongoing monitoring of contractor activities to ensure compliance with environmental and social requirements
- **Incident response:** Develop procedures for addressing and reporting any environmental or social incidents related to contractor activities
- **Health and Safety Standards:** Define health and safety standards that contractors must adhere to during all project phases
- **Audit and Inspections:** Conduct regular audits and inspections to verify contractor compliance with health and safety protocols
- **Internal Communication:** Facilitate effective communication with the project team to ensure alignment on project objectives, expectations, and any changes in plans
- **External Communications:** Coordinate with regulatory authorities, local communities, and other stakeholders to ensure transparency and responsiveness

### 12.3.2 Contractor Responsibilities

Contractors engaged in any HFE's project(s)'s construction and O&M phases must fulfil specific roles and responsibilities to ensure project success and alignment with environmental and social standards.

- **Legal Compliance:** Adhere to all applicable legal regulations and acts relevant to the project
- **Environmental and Social Standards:** Implement all the provisions of HFE's ESG MF
- **Safety Protocols:** Implement safety protocols as stated in HFE's ESG MF and associated appendixes to protect the well-being of workers and local communities
- **Training:** Ensure that all contractor's and sub-contractor(s)' receive appropriate health and safety training, and that the training is regularly updated
- **Stakeholder Communication:** Engage with local communities in a transparent and inclusive manner, addressing concerns and providing information as per the requirement of HFE's SEP
- **Grievance Mechanism:** Implement HFE's GRM to address and resolve community concerns in a timely and respectful manner
- **Impact Mitigation:** Implement environmental measures to mitigate and minimize environmental impacts associated with project activities
- **Biodiversity Conservation:** Adhere to measures outline in the ESIA or its associated studies to preserve and protect local ecosystem
- **Recordkeeping:** Maintain accurate and up-to-date records related to contractor activities, environmental and social performance, health and safety, and quality assurance
- **Reporting:** Provide regular reports on environmental and social performance, health and safety incidents, and quality assurance measures.

## 12.4 Contractor identification and Selection

The contractor identification and selection process shall be undertaken by the purchase and technical team. Each vertical or key department will provide the purchase team with a purchase request, which shall provide the following details:

- Nature of work/ scope of work for which contractual services are required
- Any specifications in terms of work experience, qualifications, or speciality of the contractors
- Details of task in terms of number of workers required, duration, schedule, estimated budget etc.
- Any other specific aspects to be kept in mind

Based on these requirements, the purchase team shall identify potential contractors for the task. The purchase team shall also consider putting in place a list of pre-approved contractors, which would form as a database and would be used for future engagements.

### 12.4.1 Contractor Selection Checklist

The Contractor Selection Checklist enlists the criteria for selection of contractors and related safeguards to be integrated in the agreements with Contractors. After selection of Contractors, aspects like HSE and labour compliance criterion to be followed are included in the contract agreement with clearly stipulated guidelines and timelines for completion of action items.

Once the list of contractors is identified, a desk-based evaluation shall be undertaken of each. For this purpose, an initial document request list will be sent to the contractors, including all requisite documentation (registration, taxes, labour laws documentation, health, and safety etc.) in keeping with the prevalent rules and regulations. At this stage, only copies or proof of documentation shall be requested. Based on a review of these documents, the following contractor evaluation checklist shall be filled up.

## Checklist for Suppliers

Sr. No.	Request for Information	Description
<b>1.</b>	<b>Company background</b>	
a.	Years in business	
b.	Financial stability	
c.	Reputation and references	
<b>2.</b>	<b>Product/Service Quality</b>	
a.	Quality assurance process	
b.	Certifications (ISO etc)	
c.	Past Performance and reliability	
<b>3.</b>	<b>Customer Service</b>	
a.	Responsiveness	
b.	Support services	
c.	Complaint resolution process	
d.	HSE Compliance Criteria	
<b>4.</b>	<b>Health and Safety Policies</b>	
a.	Comprehensive health and safety policies	
b.	Regular safety training programs	
c.	Incident reporting and investigation procedures	
<b>5.</b>	<b>Risk Management</b>	
a.	Risk assessment and mitigation plans	
b.	Emergency preparedness and response plans	
c.	Compliance with local and international safety standards	
<b>6.</b>	<b>Environmental Management</b>	
a.	Environmental impact assessments	
b.	Waste management and recycling programs	



Sr. No.	Request for Information	Description
c.	Compliance with environmental regulations	
<b>7.</b>	<b>Certifications and Audits</b>	
a.	ISO 14001 (Environmental Management)	
b.	OHSAS 18001/ISO 45001 (Occupational Health and Safety)	
c.	Regular internal and external audits	
d.	Labor Compliance Criteria	
<b>8.</b>	<b>Legal Compliance</b>	
a.	Adherence to local labor laws and regulations	
b.	Compliance with minimum wage and overtime laws	
c.	Proper documentation and record-keeping	
<b>9.</b>	<b>Workplace Conditions</b>	
a.	Safe and healthy working conditions	
b.	Adequate facilities and amenities for workers	
c.	Regular health and safety inspections	
<b>10.</b>	<b>Fair Labor Practices</b>	
a.	No child labor or forced labor	
b.	Equal opportunity employment	
c.	Anti-discrimination and harassment policies	
<b>11.</b>	<b>Employee Rights and Benefits</b>	
a.	Compliance with social security and benefits regulations	
b.	Proper handling of employee grievances	
c.	Transparent communication of rights and responsibilities	
<b>12.</b>	<b>Training and Development</b>	
a.	Regular training programs for skill development	
b.	Opportunities for career advancement	
c.	Support for continuous learning	

Sr. No.	Request for Information	Description
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**Checklist for Service Provider**

Sr. No.	Request for Information	Description
1.	Please provide details of the past 3 years similar work experience	
2.	Please provide a copy of the company's environmental, social, and health and safety policies.	
3.	Please provide information on both: 1. The company's corporate ESMS 2. The project ESMS that the company would typically implement at the site	
4.	Please provide documentation of workmen licenses for the type of job they have to carry out (Electrical / Civil)?	
5.	Please provide details of any accreditations such as ISO 14001/OSHAS 18001, held by the company, and/or alignment with ISO 26000, GRI, United Nations Global Compact, World Business Council for Sustainable Development, and/or other social responsibility standards/guidelines/formal initiatives.	
6.	Please provide details on monitoring that will be done by the contractor to improve safety performance? (e.g. reporting, inspections, audits, reviews)	
7.	Please provide details if the workmen have undergone any kind of medical check-up, to ensure that their health is not affected due to work carried out in other organizations?	
8.	Please provide a typical organization chart that shows how safety and health, environmental, social (including stakeholder engagement and grievances), and labour issues are managed at the site level, including management, and monitoring of subcontractors and their performance.	
9.	Please provide appropriate E&S metrics for the past three calendar years, including spills, releases to the environment, number of environmental fines or regulatory administrative processes, number of registered stakeholder grievances (disaggregated by gender), and number of registered labour grievances (disaggregated by gender).	
10.	Please provide detailed information on how the company selects and manages its subcontractors (local or other), particularly in determining whether they have systems in place to follow the necessary environmental, social, and health and safety requirements of the project.	
11.	Please provide information on how the company monitors subcontractors' environmental, social, and health and safety compliance and performance	

Sr. No.	Request for Information	Description
12.	The client requires that goods and services are procured locally, as far as possible, when available at equivalent quality and price. Please demonstrate how the company might achieve this, illustrating with examples from other projects if appropriate	
13.	Please provide a copy of the company's safety policy.	
14.	Please provide a representative copy of a Health and Safety Site Management Plan.	
15.	Please provide details if the workmen have undergone any kind of Health and Safety Awareness training Programmes, safe use of equipment training, work activity training, and first aid training?	
16.	Please provide details if there are adequate facilities available and used to test and maintain the equipment brought in by the workmen?	
17.	Please provide appropriate health and safety metrics for the past three (3) calendar years, including (i) worked hours for the period, (ii) total recordable fatalities, and (iii) total recordable injury frequency rate	
18.	Please describe in detail how the company trains for and implements safe working practices among its workforces.	
19.	Please provide details of the contractors work force has been exposed to any kind of physical hazards / accidents during their past work experience?	
20.	Please describe how the company plans to safeguard the health and safety of its workers while on site. What are the anticipated OHS risks and how will they be addressed?	
21.	Please provide a copy of the company's HR policies and grievance mechanism, and describe how these will be communicated to all workers on-site	
22.	Please provide details on how the company will comply with national labour and employment law	
23.	Please provide details if the workers of the contractors are covered under insurance policies	
24.	Please provide details how the company will manage equal opportunities and non-discrimination, sexual harassment issues, migrant labour, and retrenchment among its workforce	
25.	Please describe how the above issues will be managed by the company at the subcontractor level, including monitoring and reporting systems.	
26.	HFE requires that contractors have cognizance of the minimum standards for worker facilities at the site, including sanitation, access to drinking water, and accommodation set out in the HFE's workers accommodation's plan. Please describe how the company will incorporate these requirements into the project.	

Sr. No.	Request for Information	Description
27.	Please describe how the company typically manages solid waste, both hazardous and non-hazardous, generated by its activities at a construction site, including reduce, reuse, and recycle initiatives.	
28.	Please describe how the company typically manages wastewater (for example, in camps, process) generated by its activities at a construction site, including reduce, reuse, and recycle initiatives	
29.	Please describe how the company typically manages storm water flow generated by its activities at a construction site	
30.	Please describe how the company typically manages and uses fresh water at the company's sites	
31.	Please describe how the company prepares for emergencies at its sites, including those that may affect nearby communities, such as an explosion or accident or a spill or release into a local water course. Please describe how the company prepares for emergencies at its sites, including those that may affect nearby communities, such as an accident or security threat	
32.	Please provide information if the contractor have any Records of enforcement action taken by authorities?	
33.	Please describe how the company trains for and implements good driving practices among its workforce to avoid or minimize impacts to the communities.	
34.	Please provide a code of conduct describing expectations for the behaviour of direct and subcontract employees when outside the work site and in the host community. The code of conduct should include specific provisions to prevent SEA and GBV	
35.	Please provide details of how the company typically manages community engagement and community relations to respect the client's existing relationship with communities and contributes to this.	
36.	Please provide details of the company's physical and personnel security measures and how security is typically implemented at its sites.	
37.	Please provide details of the company's policy for the adequate management of security measures and protection of human rights of local communities.	
38.	Please describe how the company typically addresses the finding of archaeological or cultural heritage items during execution of its work	
39.	Please provide Fatality records in the work executed for other organisation for the last 3 years	
40.	Please provide LTIFR records in the work executed for other organisation for the last 3 years	

In case of any information gaps, or need for further clarifications, the purchase team may undertake interviews with the contractors, ask for additional information and consult with their previous clients. A background check of the contractor will also be carried out through public domain and through an external consultant.

On the basis of this checklist, a ranking shall be undertaken of all contractors and the highest-ranking contractor, based on their E&S performance and cost considerations will be selected. This ranking and finalization shall be discussed and approved by the EHS Manager at the corporate and plant (asset) level. Once a contractor is selected, the original copies of the documentary proof will be verified (if they have not already been provided for review) and the contractor will be notified of the selection.

After selection of Contractors, aspects like HSE and labour compliance criterion to be followed are included in the contract agreement with clearly stipulated guidelines and timelines for completion of action items.

## **12.5 Contract Agreement**

Once the contractor is finalized, the formal agreement process will be initiated. While the Commercial and contract's team will be primarily responsible to formulate and finalize the work order, the Finance team may be engaged at this stage to oversee the finalization of the financial aspect of the contract, and the technical team (for specifications and technical approvals), while the EHS team (and any other team as appropriate) may be required to review the scope of work and E&S clauses included. The formal contract agreement to be formulated, will include (at a minimum) the following:

- Terms of engagement
- Scope of work
- Adherence to applicable rules and regulations especially, EHS and Labour (payment of wages, minimum wages, registration, prohibition of child labour and forced labour, overtime etc.)
- Compliance to E&S requirement under the ESG MF
- Relevant applicable E&S policies of HFE
- Requirement for documentation and reporting

Monitoring and review process to be followed and penalty clause or the circumstances under which the contract will be nullified.

### **12.5.1 E&S Clauses in Agreement with Contractors**

Applicable to all works performed for Hero Future Energy, and it is applicable to all Subcontractors, suppliers, vendors and any other company or individual providing any sort of services to the project (hereinafter "Subcontractors").

### **12.5.2 Special Clauses in Contractor Agreements**

While onboarding contractors, after the screening and evaluation, HFE ESG MF will have to be communicated to the contractor. The contractors will have to be introduced to policies and requirements that they may have not been practicing or aware of before their engagement with Hero Future Energy. Some of the indicative clauses to be included as part of the Contractor Agreements are suggested below:

- Compliance to HFE Policies and policies supporting Human Rights and their requirements which will be annexed to the Contract agreement (will be attached to the agreement)
- Submission of relevant documents to regulatory authorities as agreed with/required and maintenance of relevant records of the same (such as the contract labour license for the specific state, inter-state migrant worker's registration etc.)

- Compliance to all relevant requirements of the EC conditions/ ESG MF requirements/ regulatory requirements and other studies undertaken (as applicable to the contactor's area of work)
- Preparation of all relevant plans and other documentation, as identified through the ESG MF or other commitments of HFE
- Adherence to E&S management Plan for the site (as pre-approved by HFE)
- Adherence to the Budget set aside for implementation of E&S management Plan for the site (As pre-approved by HFE)
- Notice of any incident/accident on site or off-site to HFE within 24 hours; and
- Acknowledgement and agreement to ongoing monitoring and periodic audits and its relevant consequences during the project lifecycle.

### 12.5.3 Labour Clauses in Contractor Agreements

In case of labour contractors, the key labour clauses to be included in the contractor agreements are indicated below:

- Compliance to the HFE terms (as per the Contract Agreement- payment terms, special terms and conditions, code of ethics and general terms and conditions etc.)
- The contractor must be registered and have a valid license under the Contract Labour Regulation and Abolition Act, 1970 and the Inter-State Migrant Workmen Act, 1979 (where applicable)
- All workers shall be provided with appointment letters, clearly stating the following:
  - Name of worker
  - Present Address
  - Permanent Address
  - Contact Number
  - Designation
  - Type of work
  - Date of joining
  - Wages or pay scale
  - Terms and conditions of employment and the job description; and
  - Service rules applicable

**Note:** The communication can be orally or in writing. Oral communication may be appropriate for simple short-term jobs (where the employment is less than one (1) month) or where workers are illiterate. In other cases, HFE should provide documentation of the working conditions and terms of employment

- The contractor shall maintain a copy (duly signed) of the letter of appointment in the worker's personnel file
- Each worker shall be provided with an identity card, clearly stating Name, class of worker, age, and validity
- The identity card and letter of appointment shall be issued once the worker clears the physical fitness to work test at the site
- The workers shall be organized into shifts of 8 hours each. Any worker working more than 8 hours shall be paid overtime for the extra hours worked, in keeping with the labour regulations
- No worker shall be forcibly required to work for more than 8 hours a day or 48 hours in a week without payment of overtime. Overtime should not exceed the regulatory requirement as mandated by law
- Every worker shall be given one day off in a week
- Each worker shall be eligible for the following leaves
  - Casual Leave
  - Sick Leave
  - Festivals
  - Maternity Leave; and

- Annual Leave.
- All Workers shall be paid at least minimum wages
- Hero Future Energy shall put in place the following clauses in its contractor agreements in keeping with the labour regulations:
  - Prohibition of Child Labour and forced labour
  - Abolition of Discrimination
  - Working Hours and Overtime policy
  - Leave policy
  - Conviction and misconduct policy
  - Punishment and termination policy
  - Wages and remuneration policy
  - Bonus policy
  - Maternity benefits
- The contractor shall provide wages and benefits in keeping with the labour regulations, including service benefits, Provident Fund, ESIC (or workmen compensation), festival bonuses etc.,
- The contractor must maintain but not limited to the following registers, in keeping with the labour regulations:
  - Labour/Worker's Register
  - Leave Register
  - Wage register
  - Overtime Register
  - Register for night duty female workers
  - Register for advance amounts
  - Proof of age and competence of all workers
  - Register of cleanliness
  - Register of the accidents and report of half yearly accidents.
- In case of sudden natural disasters or an emergency outside of human control, which results in laying off workers, the contractor shall be liable to pay the legal arrears or full pay to the workers in keeping with the labour rules. These costs shall be invoiced and claimed from the project.
- The contractor shall initiate a group insurance policy for all of its workers; and
- No worker shall be disbarred from seeking membership in a trade union or association

#### 12.5.4 Behavioural Based Safety

Subcontractors must support and follow the MS HSE culture based on people's behaviour and commit themselves to follow the established behavioural based strategies to make HSE part of everything they do. These strategies include integration of the project staff (including contractors) into safe work practices, communications, continual training and campaigns, toolbox meetings, management-based inspection and verification programmes and other elements, all of which are supported by the project management, the technical staff, and the HSE department.

#### 12.5.5 General Aspects of HSE Management

MS HSE management and performance are both based on following lifesaving rules:

- No job will be accepted as "good to proceed" without a method statement/Risk assessment - All processes (construction, installation, testing, maintenance, repair, etc.) must be covered with a method statement. Hence, method statements are required to be used as the main reference for planning, analysis, risk assessment and execution of any activity.
- Every interface (interference) must be assessed and managed according to the specific project requirements - An efficient interface management process is designed to ensure every interface (and every resulting interference) is reviewed and properly assessed before moving the work forward for authorization.

- No job will start without a Permit to Work (PTW) - All activities shall be covered with a PTW. The PTW system is the base for Risk Assessment (RA), work preparation and work supervision. A PTW management process is designed to ensure every activity has been reviewed, assessed, planned, and authorized as required.
- No job will start if any form of energy is not properly identified, assessed, and controlled. A process for energy management (complementary to the operational controls), set to ensure that every work is carried out considering the best options and works methods in terms of energy management.

These rules are mandatory for all Subcontractors. Non-compliance will result in disciplinary actions.

### 12.5.6 Administration & Office Works

Every Subcontractor which has been awarded with a contract covering mainly administration and office activities (engineering, design and other activities performed within their HQ) shall ensure the following:

- Full compliance with all legal requirements applicable to the location of their HQ –including all those related to occupational health, medical care, ergonomics, fire, and preservation of life in case of fire, emergency preparedness and response and any other HSE standard that affects or could affect their activities in any way.
- Full commitment with any initiative and/or strategy against hiring children or any form of slavery
- Full compliance of all site HSE requirements whenever they visit the projects sites or facilities for whichever the reason (including non-technical visits, which must be informed and previously authorized by the site/project management).
- Any other requirement related to health, safety, and environmental protection when at site.

### 12.5.7 PTW Management System

All operations must be reviewed, assessed, and authorized according to the established project planning using a PTW management system. The system is the approved tool to be used to ensure the following:

- Consistent approach to work planning and work coordination.
- Better information about each activity is available to make work coordination and interface management easier for project management and technical staff.
- Solid process for work management/authorization is set in place.
- Proper resources, responsibility, and supervision assignment for each activity.
- Adequate control of Subcontractors' activities.
- Control of site conditions before, during and after a work has been carried out.

### 12.5.8 Energy Management

Energy is a primary resource in every project. Due to this, and regarding the regular hazards associated with energy in every stage of the project, an energy management procedure will be set in order to ensure proper decisions are taken for all activities in which energy is or could be present –even when working close to a source of energy- must be conveniently assessed in order to set any control measures considered relevant to grant the job is performed under the safest possible conditions.

Energy management is (and shall be) applicable under the following circumstances:



Stage	Conditions
Construction/ installation	<ul style="list-style-type: none"> <li>When working on any equipment set to provide temporary power services before systems are operational (service/maintenance on generators, electrical panels, hydraulic/water pumps, and other temporary equipment)</li> <li>When testing or pre-commissioning activities are to be performed, regardless of the power source (temporary/permanent)</li> </ul>
Commissioning	<ul style="list-style-type: none"> <li>When activities are to be performed on a system or equipment that has been already transferred to commissioning group (hence considered "live equipment" regardless of its status)</li> <li>When any equipment must be tested, repaired, or otherwise manipulated when it remains under control of the commissioning group.</li> <li>Any equipment is energized on permanent basis as part of its normal function before being transferred to O&amp;M.</li> </ul>
Operations and maintenance	<ul style="list-style-type: none"> <li>When work is required on any equipment under responsibility of O&amp;M group for repairs or regular maintenance / services operations.</li> </ul>

### 12.5.9 Project Specific Documentation

The following documents are the main references for HSE management. All the Subcontractors shall comply with these, and any other document set for the purpose (this list is not limitative) -To be updated as per project requirements:

- HSE Management Plan
- Traffic Management Plan
- Emergency Management Plan
- Environmental & Social Management Plan
- HSE Requirements for Subcontractors

### 12.5.10 Responsibilities of Sub-Contractors

Every Subcontractor must ensure a strict following to the specifications provided to control all identified hazards to ensure proper risk management in all areas under their responsibility. Subcontractors' project management, site supervisors and safety management team are the main responsible people regarding the safe execution of any activity under their scope. They must:

- Ensure all activities are performed under an approved method statement.
- Ensure all activities are planned, scheduled, and performed under an authorized working permit.
- Follow and ensure proper following of any HSE control or preventive measure.
- Provide training and support any communication and/or training strategy related to HSE management.
- Every member of the Subcontractor's technical/supervision staff (supervisors, foremen, etc.) is responsible to manage every work under her/his responsibility according to the rules and procedures set within this document and/or any other document related to HSE management. At the same time, they have the responsibility and duty to stop, suspend or delay the start of any activity when conditions are not proper to ensure a safe performance, or when they have changed in such way that the established control measures are not or could not be enough for the newly identified risks.
- All personnel: They are the main responsible people regarding their own safety, and the other's safety. To ensure this, they must strictly follow all the health and safety instructions and specifications to ensure protect their integrity and health.

- Non-qualified people (visitors, inspectors, consultants, and any other person not directly linked to a project as “regular staff”): They must follow every procedure and/or instruction related to HSE management under any circumstances.

### 12.5.11 Contractor’s HSE Team Requirements

The contractor’s on-site staff shall include HSE personnel who shall be appropriately qualified as detailed in the table below: “Competence requirements for HSE Personnel”. The ratio of workers to dedicated competent HSE personnel shall be deployed up to 0 -150 manpower 1 HSE (Officer /Engineer) person and up to 150 to 300 manpower 2 person required (1 HSE officer/Supervisor & 1 HSE Engineer /In charge) if manpower increased HSE team shall be increased accordingly for each contractor.

Each contractor shall deploy a dedicated competent HSE professional from the very first day of commencement of work.

Position	Qualification	HSE Experience	English Fluency	Owner Approval
<b>HSE Officer/ Supervisor</b>	<ul style="list-style-type: none"> <li>• Engineering Diploma/ BSC</li> <li>• Minimum one-year HSE Certifications diploma from (Govt. Approved institution, university</li> <li>• NEBOSH, IOSH etc.)</li> </ul>	>2 to 3 years in power/ renewables industry/ construction sector as HSE professional	Fluent/ Intermediate	Review of CV before arrival at site and interview by MS
<b>HSE Engineer/in charge</b>	<ul style="list-style-type: none"> <li>• Technical Degree / Diploma/BSC</li> <li>• Minimum one-year HSE Certifications diploma from govt approved institution</li> <li>• (NEBOSH, IOSH, ADIS etc.)</li> </ul>	>3 to 5 years in power/ renewables industry/ construction sector as HSE professional	Fluent/ Intermediate	Review of CV before arrival at site and interview by MS

### 12.5.12 HSE Management Requirements for Contractors – Activity Wise

Activity	Safety Requirements	Material Required	Rescue plan in Emergency
<b>Piling</b>	<p><b>Boring:</b></p> <ul style="list-style-type: none"> <li>• DTH &amp; Augur (In good conditions only) shall be brought with scanned copy of following documents               <ul style="list-style-type: none"> <li>○ Valid Registration Certificate</li> <li>○ Valid Insurance of vehicle</li> <li>○ Valid Third-Party Inspection Certificate</li> <li>○ Valid Driver's License of the operator (HMV)</li> <li>○ Valid PUC</li> </ul> </li> <li>• Whip Arrestors shall be equipped onto the pneumatic and high pressurized hoses of compressors.</li> <li>• All rotating, revolving, or moving parts of the DTH and Augur shall be guarded appropriately to avoid any physical interaction of the nearby workers</li> <li>• Availability of Drip tray for keeping chemical cans to avoid soil contamination.</li> <li>• Drilling crew shall always wear Earmuff or Ear Plug</li> </ul> <p><b>Vertical Post Shifting</b></p> <ul style="list-style-type: none"> <li>• Cotton hand gloves shall be worn by the workers while loading and unloading from store and site</li> <li>• Transporting of the Vertical posts shall be done into the long trailers only.</li> </ul> <p><b>Concreting &amp; Muffing-</b></p> <ul style="list-style-type: none"> <li>• All workers shall wear the concrete hand gloves and dust resistant mask.</li> <li>• Admixtures or any other chemical shall be kept into the drip tray.</li> <li>• Ajax machine (in good conditions only) shall be brought with scanned copy of the following documents-               <ul style="list-style-type: none"> <li>○ Valid Registration Certificate,</li> <li>○ Valid Insurance of vehicle,</li> <li>○ Valid Third-Party Inspection Certificate</li> <li>○ Valid Driver's License of the operator (HMV)</li> <li>○ Valid PUC</li> </ul> </li> </ul>	<p>PPE's-Safety Helmet, Safety Shoes, Reflective Orange colour jacket, Dotted Cotton hand gloves, Concrete hand gloves, Dust resistant Mask, Earmuff or Ear Plug Whip Arrestors &amp; Drip tray for Equipment 3- Reverse Horn, Fire extinguisher (ABC Type) &amp; First Aid boxes</p>	<ul style="list-style-type: none"> <li>• Make the area safe.</li> <li>• Find all the casualties.</li> <li>• Find the first aid kit, or any useful medical supplies.</li> <li>• Control the crowd.</li> <li>• Call for medical help in site emergency number</li> <li>• Help in providing first aid to IP</li> <li>• Lead the ambulance to the scene of the emergency</li> </ul>
<b>Lifting Work</b>	<b>Material Shifting and loading-</b>	<p>PPEs- Safety helmet, safety shoes, reflective jacket, dust</p>	<ul style="list-style-type: none"> <li>• Make the area safe.</li> <li>• Find all the casualties.</li> </ul>

Activity	Safety Requirements	Material Required	Rescue plan in Emergency
	<ul style="list-style-type: none"> <li>• Tractor, trailers &amp; faranas (In good conditions only) shall be brought with scanned copy of following documents               <ul style="list-style-type: none"> <li>○ Valid Registration Certificate</li> <li>○ Valid Insurance of vehicle</li> <li>○ Valid Third-Party Inspection Certificate (for faranas only)</li> <li>○ Valid Fitness Certificate of vehicle</li> <li>○ Valid Driver's License of the operator (HMV)</li> <li>○ Valid PUC of the vehicle</li> </ul> </li> <li>• All tractor, trailers &amp; Faranas shall be equipped with reverse horn &amp; SLI (only in farana), and all lifting gears shall be free from any defects and wear.</li> <li>• Any lifting activity shall be monitored by a competent rigger and a suitable guide rope shall be used to control any unexpected movement of the suspended load.</li> <li>• No movement of person is allowed under the suspended load and loading areas shall be cordoned off by proper means of barricading tapes/traffic cones.</li> </ul>	<p>resistant mask and cut resistant gloves.</p> <p>Equipment- Farana cranes, ladders, lifting tools and tackles with third party inspection certificate, Safe load indicator, Reverse horn, Guide ropes, Traffic cones, barricading tapes</p>	<ul style="list-style-type: none"> <li>• Find the first aid kit, or any useful medical supplies.</li> <li>• Control the crowd.</li> <li>• Call for medical help in site emergency number</li> <li>• Help in providing first aid to IP</li> <li>• Lead the ambulance to the scene of the emergency</li> </ul>

### 12.5.13 HSE Management Requirements for Contractors – Equipment Wise

Equipment	Safety Requirements	Material required
<b>Travelling vehicles</b>	<ul style="list-style-type: none"> <li>• Travelling vehicles (In good conditions only) shall be brought with scanned copy of following documents               <ul style="list-style-type: none"> <li>○ Valid Registration Certificate</li> <li>○ Valid Insurance of vehicle</li> <li>○ Valid PUC</li> <li>○ Valid Fitness Certificate of vehicle</li> <li>○ Valid Driver's License of the operator (LMV) shall be present every time with the operator.</li> <li>○ Front &amp; Reverse horn, indicators, head lights, taillights, parking lights shall be fully functional.</li> </ul> </li> </ul>	Fire Extinguishers (ABC Type), First-Aid Box, Reverse horn

Equipment	Safety Requirements	Material required
<b>Construction Vehicles</b>	<ul style="list-style-type: none"> <li>• All construction vehicles (DTH, Augur, Ajax) In good conditions only, shall be brought with scanned copy of following documents               <ul style="list-style-type: none"> <li>○ Valid Registration Certificate</li> <li>○ Valid Insurance of vehicle</li> <li>○ Valid PUC</li> <li>○ Valid third-party inspection certificate</li> <li>○ Valid Driver's License of the operator (HMT) shall be present every time with the operator.</li> </ul> </li> <li>• Front &amp; Reverse horn, indicators, head lights, taillights, parking lights shall be fully functional.</li> <li>• Tyres &amp; general body conditions shall be good.</li> <li>• First-Aid box and fire extinguishers shall be available inside the vehicle.</li> </ul>	Fire Extinguishers (ABC Type), First-Aid Box, Reverse horn, drip tray, warning triangle
<b>Excavator&amp; Back-hoe loader</b>	<ul style="list-style-type: none"> <li>• These vehicles (In good conditions only) shall be brought with scanned copy of following documents               <ul style="list-style-type: none"> <li>○ Valid Registration Certificate</li> <li>○ Valid Insurance of vehicle</li> <li>○ Valid PUC</li> <li>○ Valid Driver's License of the operator (HMT) shall be present every time with the operator.</li> </ul> </li> <li>• Front &amp; Reverse horn, indicators, head lights, taillights, parking lights, beacon lights, hydraulic oil gauge meter shall be fully functional.</li> <li>• Tyres, channels &amp; general body conditions shall be good.</li> <li>• Hydraulic hoses, pipes &amp; cylinders shall be free from budging, damage &amp; defects.</li> <li>• First-Aid box and fire extinguishers shall be available inside the vehicle.</li> </ul>	Fire Extinguishers (ABC Type), First-Aid Box, Reverse horn, Beacon light, drip tray, warning triangle
<b>Trailers&amp; Dumpers</b>	<ul style="list-style-type: none"> <li>• Trailers &amp; dumpers (In good conditions only) shall be brought with scanned copy of following documents               <ul style="list-style-type: none"> <li>○ Valid Registration Certificate</li> <li>○ Valid Insurance of vehicle</li> <li>○ Valid PUC</li> <li>○ Valid Fitness Certificate of vehicle</li> <li>○ Valid Driver's License of the operator (HMT) shall be present every time with the operator.</li> </ul> </li> <li>• Front &amp; Reverse horn, indicators, head lights, taillights, parking lights shall be fully functional.</li> <li>• Tyres, hydraulic cylinders &amp; general body conditions shall be good.</li> </ul>	Fire Extinguishers (ABC Type), First-Aid Box, Reverse horn, Drip tray, warning triangle

Equipment	Safety Requirements	Material required
<b>Tractors</b>	<ul style="list-style-type: none"> <li>• First-Aid box and fire extinguishers shall be available inside the vehicle.</li> <li>• Tractors (In good conditions only) shall be brought with scanned copy of following documents               <ul style="list-style-type: none"> <li>○ Valid Registration Certificate</li> <li>○ Valid Insurance of vehicle</li> <li>○ Valid PUC</li> <li>○ Valid Fitness Certificate of vehicle</li> <li>○ Valid Driver's License of the operator (LMV) shall be present every time with the operator.</li> </ul> </li> <li>• Front &amp; Reverse horn, indicators, head lights, taillights, parking lights shall be fully functional.</li> <li>• Tyres, trolley &amp; general body conditions shall be good.</li> <li>• First-Aid box and fire extinguishers shall be available inside the vehicle.</li> </ul>	Fire Extinguishers (ABC Type), First-Aid Box, Reverse horn
<b>Farana &amp; Boom Cranes</b>	<ul style="list-style-type: none"> <li>• All cranes (In good conditions only) shall be brought with scanned copy of following documents               <ul style="list-style-type: none"> <li>○ Valid Registration Certificate</li> <li>○ Valid Insurance of vehicle</li> <li>○ Valid PUC</li> <li>○ Valid third-party inspection certificate</li> <li>○ Valid Driver's License of the operator (LMV) shall be present every time with the operator.</li> </ul> </li> <li>• Front &amp; Reverse horn, indicators, head lights, taillights, parking lights &amp; beacon lights shall be fully functional.</li> <li>• Tyres, general body conditions, lifting wires, hydraulic hoses, hydraulic fittings &amp; hooks shall be free from any defect and wear.</li> <li>• First-Aid box and fire extinguishers shall be available inside the vehicle.</li> </ul>	Fire Extinguishers(ABC Type), First-Aid Box, Reverse horn, beacon light, drip tray, warning triangle, traffic cones and barricading tapes.
<b>Grader</b>	<ul style="list-style-type: none"> <li>• Graders (In good conditions only) shall be brought with scanned copy of following documents               <ul style="list-style-type: none"> <li>○ Valid Registration Certificate</li> <li>○ Valid Insurance of vehicle</li> <li>○ Valid PUC</li> <li>○ Valid Driver's License of the operator (LMV) shall be present every time with the operator.</li> </ul> </li> <li>• Front &amp; Reverse horn, indicators, head lights, taillights, parking lights, beacon lights shall be fully functional.</li> </ul>	Fire Extinguishers (ABC type), First-Aid Box, Reverse horn, Drip tray, warning triangle

Equipment	Safety Requirements	Material required
	<ul style="list-style-type: none"> <li>• Tyres &amp; general body conditions shall be good.</li> <li>• First-Aid box and fire extinguishers shall be available inside the vehicle.</li> </ul>	
<b>Drill Machines</b>	<ul style="list-style-type: none"> <li>• Drill machines in good conditions shall be brought with following requirements <ul style="list-style-type: none"> <li>○ Double insulated cable free from any damage and joints.</li> <li>○ Gland at the entrance of cable</li> <li>○ Industrial plug top</li> <li>○ No exposed rotating or moving part of the drill.</li> <li>○ In-built Emergency stop button</li> <li>○ V belts (in case of fixed drill) shall be free from any damage, and wear &amp; it should be safe guarded.</li> </ul> </li> </ul>	Fire Extinguishers (ABC Type), First-Aid Box, machine safeguards
<b>(Fixed&amp; Portable)</b>	<ul style="list-style-type: none"> <li>• Cutting machines in good conditions shall be brought with following requirements <ul style="list-style-type: none"> <li>○ Double insulated cable free from any damage and joints.</li> <li>○ Gland at the entrance of cable</li> <li>○ Industrial plug top</li> <li>○ Fixed as well as adjustable safeguard shall be in-built.</li> <li>○ In-built Emergency stop button</li> </ul> </li> </ul>	Fire Extinguishers (ABC Type), First-Aid Box, Fixed and adjustable safeguards
<b>Wood &amp; Steel Cutting Machine</b>	<ul style="list-style-type: none"> <li>• Silent DG in good conditions (closable doors) shall be brought with following requirements <ul style="list-style-type: none"> <li>○ Double insulated cable free from any damage and joints</li> <li>○ Gland at the entrance of cable &amp; any exposed terminals</li> <li>○ Industrial plug top</li> <li>○ In-built Distribution board, RCCB/ELCB, Grounding of the machine</li> <li>○ Emergency stop button</li> <li>○ Drip tray must be available with the DG</li> <li>○ Earthing rod to ground the DG</li> <li>○ Fire Extinguisher to be available with DG</li> </ul> </li> </ul>	Fire Extinguishers (ABC & Foam Type), Drip tray, earth rod, spill kit

#### 12.5.14 HSE Penalties

Hero has built an image of safety conscious organization meticulously over a period. Any Lost Time Accident and Severe Accident results in loss of life and/or property damage. These accidents not only result in loss of life but also damage the reputation of Hero Future Energy. Most of the accidents are avoidable and caused preliminary due to contractors' negligence.

The following table indicates the HSE violation and penalty to be recovered from contractors.

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## HSE PENALTIES

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S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
Housekeeping	<ul style="list-style-type: none"> <li>• Surrounding area of drinking water tank/taps not hygienically cleaned</li> <li>• Unused surplus cable/steel scraps lying scattered.</li> <li>• Wooden scrap, empty cable drum, packing materials lying scattered.</li> <li>• Water stagnation leading to mosquito breeding.</li> <li>• Excavated earth not removed within reasonable time</li> <li>• Gangway and passageway blocked.</li> <li>• Store, toilet/urinal</li> </ul>	<p>Warning Letter for first Violation</p> <p>INR 500/week per single violation</p> <p>HRE will supply@ double the cost, amount will be deducted from the Contractor in RA bill</p>



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## HSE PENALTIES

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S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
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- not properly cleaned and maintained.
- Required dustbin not provided at appropriate place to collect waste
- Improper stacking / storing of materials including safety gears.
- Required dustbins at appropriate places not provided / not cleaned
- Stairways, gangways, passageways blocked.
- Lumber with protruding nails left as such

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## HSE PENALTIES

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S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
Site Electrical Safety	<ul style="list-style-type: none"> <li>• Non-compliance of stated requirement in the contract</li> <li>• Use of non-industrial type MDB, SDB, Extension Board, Socket &amp; Plug.</li> <li>• Power tapping without socket &amp; Plug top</li> <li>• Improper grounding of electrical appliances.</li> <li>• Electrical cable running on ground.</li> <li>• Electrical connection taken without any protection devices i.e., ELCB, MCB, Fuses, etc.</li> <li>• Absence of LOTO.</li> </ul>	<p>Warning Letter for first Violation</p> <p>INR 500/Occasion/Day per single violation</p> <p>HRE will supply@ double the cost; amount will be deducted from the Contractor in RA bill clause.</p>

**HSE PENALTIES**

**S.NOTOPIC**

**UNSAFE ACT / UNSAFE CONDITION/ACCIDENT**

**DEDUCTIBLE AMOUNT**

- Absence of robust electrical distribution system.
- Non availability of competent site electrician.
- Inadequate illumination at site.
- Open main and site electrical Pane

Lifting Tools, Tackles and Cranes

- Non availability of fitness certificate of all lifting tools tackles and crane.
  - Safe Working Load (SWL) not displayed on machine.
  - Safety devices including load chart not provided, not
- Warning Letter for first Violation  
 INR 500/Occasion/Day per single violation  
 HRE will supply@ double the cost, amount will be deducted from the Contractor in RA bill

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## HSE PENALTIES

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S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
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|  | <p>working in crane.</p> <ul style="list-style-type: none"><li>• Failure to submit method statement in case of all critical lifting.</li><li>• Deployment of incompetent operator</li><li>• Any Non-compliances regarding safe rigging requirement.</li><li>• Use of Hand splice sling for lifting activity.</li><li>• Use of defective equipment.</li><li>• Poor slinging of the load</li><li>• General misuse of equipment</li><li>• Documents not displayed on the machine or not available with</li></ul> |  |
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HSE PENALTIES

S.NOTOPIC UNSAFE ACT / UNSAFE CONDITION/ACCIDENT DEDUCTIBLE AMOUNT

- the operator as per clause
- Maximum Safe Working Load not written on the machine as per clause
- Age of the operator less than 21 years or without any license and non-compliance of other item as per relevant clauses

Working at Height- /ladder and scaffold

- Not using and anchoring full body harness. Warning Letter for first Violation INR 500/Occasion/Day per single violation
- Absence of lifeline where it is required. HRE will supply@ double the cost; amount will be deducted from the Contractor in RA bill
- Using bamboo ladder and locally fabricated ladder
- Aluminium ladder without

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## HSE PENALTIES

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S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
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- base rubber bush.
- Working on broken and unsecured ladder.
- Improper guardrail, toe board, barrier, and other means of collective protection.
- Improper working platform.
- Working on unprotected & unsecured surface.
- Opening not protected.
- Non usage for tools bag in height work.
- Missing components in safe scaffold.
- Working on unlocked wheels of

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## HSE PENALTIES

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S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
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- mobile scaffold.
- Shifting of mobile scaffold with person available on top.
- An inclination of four in one is not maintained in using ladder
- Requirement of personal fall protection system
- Painting of ladders
- Improper usage (less than 1m extension above landing point, not maintaining 1:4 ratio)
- Usage of re-bar welded ladders

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## HSE PENALTIES

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S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
	<ul style="list-style-type: none"> <li>Working at unprotected edges</li> </ul>	
Site HSE Discipline	<ul style="list-style-type: none"> <li>Failing to conduct Job Specific Toolbox Meeting.</li> <li>Failure to carry out site inspection before commencing of job.</li> <li>Failure to ensure PTW.</li> <li>Disobey of safety advises given by Site Manager, OHS Manager &amp; any other HERO EPC representative.</li> <li>Failure to comply with Client EHS requirements</li> <li>Failure to report unsafe</li> </ul>	<p>Warning Letter for first Violation</p> <p>INR 500/Occasion/Day per single violation</p>



**HSE PENALTIES**

<b>S.NOTOPIC</b>	<b>UNSAFE ACT / UNSAFE CONDITION/ACCIDENT</b>	<b>DEDUCTIBLE AMOUNT</b>
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- act / unsafe condition
- Failure to report Near Miss, First aid/ LTA, and Severe incidents.
- Without HSE induction

Welding

- Voltmeter and Ammeter not working.      Warning Letter for first Violation  
INR 500/Occasion/Day per single violation
- Improper grounding and return path.
- Damage and bare opening in welding cable.
- Use of damage holder
- Absence of lugs for connection.
- Fire extinguisher not in vicinity during operation

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## HSE PENALTIES

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S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
	<ul style="list-style-type: none"> <li>• Absence of Weather protection for welding machine</li> <li>• Inadequate PPEs for Welder (Helmet with face shield, Safety shoes, Leather hand gloves, Leather body apron)</li> <li>• Non-availability of separate switch in the transformer</li> </ul>	
Gas Cutting / welding	<ul style="list-style-type: none"> <li>• Cylinder not stored in upright condition.</li> <li>• Non-use of cylinder trolley during operation</li> <li>• Damaged hose and fail to use hose clamp.</li> </ul>	<p>Warning Letter for first Violation</p> <p>INR 500/Occasion/Day per single violation</p>

## HSE PENALTIES

S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
	<ul style="list-style-type: none"> <li>• Using domestic LPG</li> <li>• Fail to store cylinder 6.6m away from fire prone materials.</li> <li>• Fire extinguisher not in vicinity during operation</li> <li>• Wrong Colour coding of cylinder.</li> <li>• Flash back arrester, non-return valve and regulator not present or not in working condition.</li> </ul>	
PPE	<ul style="list-style-type: none"> <li>• Personal Protective Equipment) e.g.- Safety Shoe, Safety Helmet, Reflective Jackets, Full</li> </ul>	<p>Warning Letter for first Violation</p> <p>INR 200/Occasion/Day per single violation</p> <p>HRE will supply@ double the cost; amount will be deducted from the Contractor in RA bill</p>

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## HSE PENALTIES

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S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
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|  | body harness,<br>Hand gloves,<br>Nose mask Ear<br>protection, Eye<br>protection,<br>protective<br>suits etc.   |  |
|  | <ul style="list-style-type: none"><li>• Not having.</li><li>• Using<br/>damaged one.</li><li>• Poor Storage</li><li>• Inadequacy of<br/>required PPE's</li><li>• Not wearing<br/>(or) using and<br/>kept it<br/>elsewhere.</li><li>• Using wrong<br/>Colour helmet<br/>or helmet<br/>without logo</li><li>• Using for other<br/>operation (e.g.<br/>Using safety<br/>helmet for<br/>storing<br/>materials or<br/>carrying water<br/>from one place<br/>to other)</li></ul> |  |

HSE PENALTIES

S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
	<ul style="list-style-type: none"> <li>• Not conforming to BIS standard</li> <li>• Non-compliance of other relevant clauses.</li> </ul>	
Road Safety	<ul style="list-style-type: none"> <li>• Seat belts not available or not used</li> <li>• Vehicles not insured</li> <li>• Vehicles not fitted with Fire Extinguisher</li> <li>• Driver not having valid license</li> <li>• Transportation of worker in open truck and in unsafe manner etc.</li> <li>• Use of mobile phone while driving</li> <li>• Violation of traffic rules</li> </ul>	<p>Warning Letter for first Violation</p> <p>INR 200/Occasion/Day per single violation</p> <p>HRE will supply@ double the cost, amount will be deducted from the Contractor in RA bill</p>

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**HSE PENALTIES**

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<b>S.NOTOPIC</b>	<b>UNSAFE ACT / UNSAFE CONDITION/ACCIDENT</b>	<b>DEDUCTIBLE AMOUNT</b>
	<ul style="list-style-type: none"> <li>Unsafe Parking of Vehicle</li> </ul>	
Occupational Health	<ul style="list-style-type: none"> <li>Fail to conduct pre-employment and periodic medical examination of workmen</li> <li>Absence or inadequacy of first aid box and first-aid person in work site</li> <li>Drink and drive on work</li> <li>Fumigation and insecticide not sprayed to prevent mosquito breeding 5.</li> <li>Absence of drinking water facility.</li> <li>Absence of ambulance van &amp; room</li> <li>work site.</li> </ul>	<p>Warning Letter for first Violation</p> <p>INR 1000/occasion/Day per single violation</p> <p>HRE will supply@ double the cost, amount will be deducted from the Contractor in RA bill</p>

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**HSE PENALTIES**

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<b>S.NOTOPIC</b>	<b>UNSAFE ACT / UNSAFE CONDITION/ACCIDENT</b>	<b>DEDUCTIBLE AMOUNT</b>
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- Misuse of first-aid box.
- First-aid box does not satisfy the minimum Indian standard.
- Smoking inside the O&M site
- Non-compliance of clause

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Excavation	<ul style="list-style-type: none"> <li>• Failure to ensure sloping / benching for excavation</li> <li>• Failure to provide shoring when needed</li> <li>• Failure to ensure inspection of excavated pits prior to start of job on daily basis.</li> <li>• Improper access and</li> </ul>	Warning Letter for first Violation INR 500.00 per single violation compounded to a maximum of INR 2500.00 at single instance
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**HSE PENALTIES**

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<b>S.NOTOPIC</b>	<b>UNSAFE ACT / UNSAFE CONDITION/ACCIDENT</b>	<b>DEDUCTIBLE AMOUNT</b>
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|  | <ul style="list-style-type: none"> <li>egress from excavated pits</li> <li>• Failure to ensure edge protection (hard barricading), if the depth of excavation is more than 1.2m. and when required</li> <li>• Minimum distance 1.5 meter from the edge of excavated pit not maintained for placing excavated loose soil, material, and machineries.</li> </ul> |  |
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Fire Protection	<ul style="list-style-type: none"> <li>• Smoking and open flame in fire prone area</li> <li>• Non availability of Fire</li> </ul>	Warning Letter for first Violation INR 5,000 per single violation HRE shall supply @ double the cost; amount will be deducted from the Contractor in RA bill
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**HSE PENALTIES**

S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
	<ul style="list-style-type: none"> <li>extinguishers in fire prone areas</li> <li>• Fire extinguisher placed in not easily accessible location</li> <li>• Work area &amp; lay down area not free from combustible materials including dry grass</li> <li>• Non-Compliance of relevant clauses</li> </ul>	
Resources	<ul style="list-style-type: none"> <li>• Non availability of dedicated full-time safety officer.</li> <li>• Non availability of competent (qualified &amp;</li> </ul>	<p>Warning Letter for first Violation</p> <p>INR 3000.00 per single violation compounded to a maximum of INR 15000.00 at single instance</p> <p>HRE will supply@ double the cost; amount will be deducted from the Contractor in RA bill</p>

## HSE PENALTIES

S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
	<p>experienced) supervisor.</p> <ul style="list-style-type: none"> <li>• Non availability of tools, tackles, machineries in FIT condition</li> </ul>	
Injury and Incidence reporting	<ul style="list-style-type: none"> <li>• Fatal accidents</li> <li>• Injury accident (Loss time / Severe)</li> <li>• Abnormal delay in reporting accidents or wilful suppression of information about any accidents / dangerous occurrence</li> <li>• Grievous Injury (as defined by Workmen Compensation Act)</li> </ul>	<ol style="list-style-type: none"> <li>1. INR 5000/ Occasion except fatal and Grievous injury.</li> <li>2. INR 50,000 For fatal and Grievous injury.</li> </ol>
Environmental Management	<ul style="list-style-type: none"> <li>• Improper disposal of debris / residues</li> <li>• Improper disposal of all types of waste</li> <li>• Non-Compliance of ESAP</li> </ul>	<ul style="list-style-type: none"> <li>• INR 1000/Occasion/Day.</li> </ul>

## HSE PENALTIES

S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
Labour Welfare measures	<ul style="list-style-type: none"> <li>• Inadequate number of toilets</li> <li>• Toilets not cleaned properly</li> <li>• Absence of water facilities for toilets and washing places</li> <li>• Toilet placed more than 500m from the work site</li> <li>• Accommodation not provided as per relevant act</li> <li>• Absence of drinking water</li> <li>• Excessive noise</li> <li>• Canteen not provided</li> <li>• Food stuff not served on no loss no profit basis</li> <li>• Creche not provided Nonadherence of Labour welfare provisions</li> <li>• Absence of workers register and records</li> <li>• Absence of muster roll and wages register</li> <li>• Fail to display an abstract of Factory Rules and Electricity Rules.</li> </ul>	<ul style="list-style-type: none"> <li>• INR 1000/Occasion/Day</li> </ul>
Work permit system	<ul style="list-style-type: none"> <li>• Non-compliance of PTW</li> </ul>	<ul style="list-style-type: none"> <li>• INR 5000</li> </ul>
MSDS	<ul style="list-style-type: none"> <li>• Non-compliance of relevant clause.</li> </ul>	<ul style="list-style-type: none"> <li>• INR 2000</li> </ul>
Hand tools and Power tools	<ul style="list-style-type: none"> <li>• Non-compliance of requirement</li> </ul>	<ul style="list-style-type: none"> <li>• INR 200/Occasion/Day</li> </ul>
Emergency preparedness Plan	<ul style="list-style-type: none"> <li>• Non-compliance of the relevant clauses.</li> </ul>	<ul style="list-style-type: none"> <li>• INR 5000/Week</li> </ul>

## HSE PENALTIES

S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
HSE Policy & Plan	<ul style="list-style-type: none"> <li>• HSE policy               <ul style="list-style-type: none"> <li>○ non-compliance of relevant clause</li> </ul> </li> <li>• HSE plan:               <ul style="list-style-type: none"> <li>○ Not as per Occupiers' content and coverage</li> <li>○ Delay in submission</li> <li>○ Not updated as per Occupier's instruction</li> <li>○ Copies not provided to all required supervisors / engineers</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• INR 1000/Day</li> <li>•</li> </ul>
HSE Organization	<ul style="list-style-type: none"> <li>• Not complying to the minimum manpower requirements as mentioned in General Instruction HFE/HSE/GI/MPR/01</li> <li>• Not filling up the vacancies created because HSE personnel leaving the contractor within 14 days.</li> <li>• HSE organization not provided with required Audio-visual and other equipment's as per General Instruction HFE/HSE/AVE/01</li> <li>• Employing through outsourcing agencies and HSE personnel are not in the payroll of the main contractor</li> <li>• Disobedience / Improper conduct of any HSE personnel.</li> <li>• HSE Manager not reporting directly to project manager of contractor.</li> </ul>	<ul style="list-style-type: none"> <li>• INR 5000/Week</li> </ul>
HSE committee	<ul style="list-style-type: none"> <li>• Failed to formulate or conduct HSE Committee meeting for any month</li> </ul>	<ul style="list-style-type: none"> <li>• INR 5000/Month/Occasion</li> </ul>

## HSE PENALTIES

S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
	<ul style="list-style-type: none"> <li>• ii) Failed to conduct Site inspection before conducting HSE Committee meeting</li> <li>• iii) Failed to send HSE Committee Meeting minutes or Agenda to Occupier in time</li> <li>• iv) Non-adherence of clause</li> </ul>	
ID card	<ul style="list-style-type: none"> <li>• Non-adherence of relevant clause</li> </ul>	<ul style="list-style-type: none"> <li>• INR 2000/Day</li> </ul>
HSE Training	<ul style="list-style-type: none"> <li>• Not complying to the requirements as mentioned in conditions of contract on HSE and HFE's HSE manual regarding:               <ul style="list-style-type: none"> <li>○ Induction training not given</li> <li>○ Supervisor/engineer/manager training not conducted as per clause.</li> <li>○ Refresher training as per clause.</li> <li>○ Toolbox talk not conducted</li> <li>○ Top management Behaviour based HSE training conducted.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• INR 1000/Occasion/Day</li> </ul>
HSE Inspection	<ul style="list-style-type: none"> <li>• Not complying to the requirements as mentioned in conditions of contract on HSE and HFE's HSE manual</li> </ul>	<ul style="list-style-type: none"> <li>• INR 2000/ Occasion</li> </ul>
HSE Audit	<ul style="list-style-type: none"> <li>• External Audit</li> <li>• Non-Compliance of relevant clause</li> </ul>	<ul style="list-style-type: none"> <li>• INR 2000/Occasion</li> </ul>
HSE Communication	<ul style="list-style-type: none"> <li>• Important days to be observed for HSE awareness as furnished by Occupier not observed.</li> <li>• Posters as furnished by Occupier not printed and displayed</li> </ul>	<ul style="list-style-type: none"> <li>• INR 1000/Day</li> </ul>

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## HSE PENALTIES

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S.NOTOPIC	UNSAFE ACT / UNSAFE CONDITION/ACCIDENT	DEDUCTIBLE AMOUNT
HSE Submittals		<ul style="list-style-type: none"><li>No compliance of all relevant clause</li><li>INR 5000/Month</li></ul>

### 12.5.15 Personal Protective Equipment

This section provides the minimum requirement for the use of PPEs. PPEs are designed to protect individuals from possible harm caused by health and safety hazards. The contractor shall ensure that contractor's personnel shall, meet the requirements set out in this section 11. Any damaged PPE shall be discarded and replaced immediately with new one confirming to the standards below.

The contractor shall provide required PPEs to workmen to protect against safety and/or health hazards. Primarily PPEs are required for the following protection. National guidelines shall be implemented, wherever applicable.

The PPEs provided by contractor shall meet the requirements prescribed as per Bureau of Indian Standards (BIS). All the PPEs used shall be marked with ISI, CE or ANSI marked.

- Head protection (Safety Helmet)
- Foot protection (Safety shoes, Gumboot)
- Body protection (High visibility clothing)
- Personal fall protection (Full body harness with shock absorber and double lanyard, rope grab fall arrestor, retractable devices etc.)
- Eye protection (Goggles, face visor)
- Hand protection (Cotton, rubber, and leather hand gloves)
- Respiratory protection (Nose mask)
- Hearing protection (Earmuffs, Ear plugs etc.)
- Di-electric safety shoes for HV workmen
- Fire resistance cover all (For pre/commissioning workmen)
- Anti-flash 6.6kv Visor (For pre/commissioning workmen)

## 12.5.16 Indian Standard on Personal Protective Equipment

Category	IS Standards	Title	Suggested Brands
<b>Body Protection</b>	<ul style="list-style-type: none"> <li>IS 818:1968</li> <li>IS 3521:1983</li> <li>IS 4501:1981</li> <li>IS 8519:1977</li> <li>IS 6513:1971</li> </ul>	<ul style="list-style-type: none"> <li>Code of practice for safety and health requirements in electric and gas welding and cutting</li> <li>Industrial safety belts and hazards</li> <li>Aprons, rubberized, acid and alkali resistant</li> <li>Guide for selection of industrial safety equipment for body protection</li> <li>Protective leather clothing</li> </ul>	3M, MSA, UDYOGI, KARAM, DuPont, Metro etc.
<b>Head Protection</b>	<ul style="list-style-type: none"> <li>IS 2925:1984</li> <li>IS 4151:1982</li> <li>IS 9473:1980</li> <li>IS 2925:1975</li> </ul>	<ul style="list-style-type: none"> <li>Industrial safety helmet</li> <li>Protective helmets for scooter and motorcycle riders</li> <li>Filter type particulate matter respirators</li> <li>Industrial safety helmets</li> </ul>	3M, KARAM, MSA, UDYOGI, CHAMPION, STANLY
<b>Foot Protection</b>	<ul style="list-style-type: none"> <li>IS 583:1981</li> <li>IS 1989</li> <li>IS 5852:1977</li> <li>IS 5557:1969</li> <li>IS 10667: 1983</li> </ul>	<ul style="list-style-type: none"> <li>Ankle boots for general purposes</li> <li>Leather safety boots and shoes</li> <li>Protective steel toe caps for footwear</li> <li>Industrial and safety rubber "knee boots"</li> <li>Guide for selection of industrial safety equipment for protection of foot and leg</li> </ul>	ACME, KARAM, UDYOGI, ALLEN COOPER, Hillson Dragon, Challenger Prima
<b>Hand Protection</b>	<ul style="list-style-type: none"> <li>IS 2577 :1986</li> <li>IS 4770:1968</li> <li>IS 6994:1973</li> <li>IS 8807:1978</li> </ul>	<ul style="list-style-type: none"> <li>Leather gloves</li> <li>Rubber gloves for electrical purpose</li> <li>Industrial safety gloves: part 1 leather and cotton gloves</li> <li>Guide for selection of Industrial safety equipment for protection of arms and hands</li> </ul>	ESAB, SS & WW, Mallcom, Arcon, Atlas, Heapro etc
<b>Eyes &amp; Face Protection</b>	<ul style="list-style-type: none"> <li>IS 8520:1977</li> <li>IS 1179:1967</li> <li>IS 5983:1980</li> <li>IS-8521:1977</li> </ul>	<ul style="list-style-type: none"> <li>Guide for selection of safety equipment for eye, face, and ear protection</li> <li>Equipment for eye and face protection during welding</li> <li>Eye protectors</li> <li>Industrial safety face shields</li> </ul>	Honeywell, Windsor, 3M
<b>Fall Protection</b>	<ul style="list-style-type: none"> <li>IS 3521:1999</li> </ul>	<ul style="list-style-type: none"> <li>Industrial Safety belts and harnesses</li> </ul>	KARAM, FREEFALL, GRAVITAS, ALLEN COOPER

Category	IS Standards	Title	Suggested Brands
		<ul style="list-style-type: none"> <li>• ISI, CE, ANSI Marked Safety belts and harnesses are acceptable only</li> <li>• Lifeline should be of Nylon, Polymer, or synthetic fibre only.</li> <li>• Breaking load should be in the range of 19.6KN or 2000Kg</li> <li>• Width and thickness of straps shall be 40mm &amp; 3mm respectively</li> <li>• Number of stitches should not be less than 3 per Cm</li> <li>• Metal parts shall be free from wear and corrosion</li> </ul>	
<b>Ear Protection</b>	<ul style="list-style-type: none"> <li>• IS 6229:1980</li> <li>• IS 9167:1979</li> </ul>	<ul style="list-style-type: none"> <li>• Method of measurement of HFE ear protection of hearing and physical attenuation of earmuffs</li> <li>• Ear protectors</li> </ul>	3M



### Colour Coding for PPEs

- Yellow- All contractor's workmen
- Blue- All contractor's Supervisor and Engineer
- Green- Safety Officer & Safety Engineer
- Red- Electricians
- Grey- Heavy Vehicle Operators
- White- All MS Staff
- Orange- Visitors
- Black- Security staff

### Colour Coding for Reflective Vests/Jackets

- Orange- For all contractor's workmen including engineers and site in-charge. It shall conform to the standards of BSEN 471:1994
- Green- All MS staff

Above mentioned colour coding shall be strictly followed by all the contractors at the project premises.

### 12.5.17 Acknowledgment Form

Name of the contract Company:

Name of the Authorized Person:

Email id:

Contract / Job order no:

Job scope:

Declaration:

I / We have read all the contents given above / I were explained all the contents given above regarding safety during work and I understand the requirement. I/ We shall strictly adhere to all norms in all our areas of working. I/We understand Safety Coordinators insistence on compliance with the safety norms is mandatory to me / us. I / We will remain wholly responsible for property damage (because of unsafe work practice by my site team), any injury, disability or fatal to workmen those who are working under me, and I will face all related legal issues.

Signature with contract Company Stamp.....

Date: .....

### 12.5.18 Contractor Induction

Once the contractor agreement is signed, and prior to initiation of work, an initiation training will be provided to each contractor and all the contractual workers involved. This training will typically be a day long training and will be undertaken by the EHS team and HR team (possibly supported by Legal team). The intent of this training will be in keeping with the specific scope of work and aimed at familiarizing the contractor and workers of the requirements of the ESG MF and their responsibilities thereunder, particularly, in terms of EHS and labor law

compliance aspects and duties and rights of contractors and contractual workers. Job specific H & S trainings may be provided if required. In case required, the EHS team and HR/ legal team may also consider a longer capacity building workshop/ training of the contractors, depending upon present capacity.

The Contractor shall ensure that all personnel working at the site receive an induction HSE training explaining the nature of the work, the hazards that may be encountered during the site work and the particular hazards attached to their own function within the operation. A documentary proof of these inductor trainings will need to be maintained outlining the duly signed list of participants, training covered.

### 12.5.19 Monitoring & Records of Contractor Performance and Compliance

Once the contractor scope of work is initiated, Hero Future Energy shall undertake regular monitoring of the contractor's performance, against applicable regulations and ESG MF requirements. This monitoring will aim at identifying any compliance gaps and identifying resolutions to address such gaps. This monitoring shall be carried out by the following teams.

HFE Teams	Purpose of Monitoring	Aspects to be covered	Monitoring Mechanism	Timeline for Monitoring
EHS team	<ul style="list-style-type: none"> <li>Ensure Contractor's compliance to ESG MF requirements</li> <li>Monitor Contractor's EHS performance</li> </ul>	<ul style="list-style-type: none"> <li>PPE usage by Workers</li> <li>Maintenance of Documentation</li> </ul>	Accident Register Review	Weekly and Monthly
			Visual observation	At least weekly
			Discussion with Workers	Monthly
			Discussion with Contractor	Monthly
			Review of grievances (if any)	Monthly
HR, compliance & Legal Team	<ul style="list-style-type: none"> <li>Ensure Contractor's compliance to ESG MF requirements</li> <li>Monitor Contractor's HR and Labour law compliance</li> </ul>	<ul style="list-style-type: none"> <li>Maintenance of Registers as required by labour laws.</li> <li>Valid registrations under labour laws</li> <li>Payment of wages</li> <li>Overtime work done and payment for the same</li> <li>Labour working conditions- especially labour camp monitoring</li> <li>Child labour and forced labour issues</li> <li>Other compliances against labour law</li> </ul>	Registration and certifications review	Based on validity of documents submitted
			Registers required by law	Monthly
			Records/ Registers of wage payments, overtime and documents evidencing payment of PPF, ESIC, etc within prescribed timelines	Monthly
			Review of identification documentation of workers	At the time of contractor signing and renewal
			Visual reconnaissance of labour camp	Weekly
			Discussion with Workers	Monthly

HFE Teams	Purpose of Monitoring	Aspects to be covered	Monitoring Mechanism	Timeline for Monitoring
			Discussion with Contractor	Monthly
			Review of grievances (if any)	Monthly
Contract & Finance Team	<ul style="list-style-type: none"> <li>Ensure Contractor adherence to contract terms and conditions (excluding EHS and labour)</li> <li>Monitor timely completion of scope of work and invoicing</li> </ul>	<ul style="list-style-type: none"> <li>Compliance to general terms and conditions of contract</li> <li>Compliance to timeline</li> <li>Compliance to invoicing terms and conditions</li> </ul>	Visual reconnaissance Discussion with Hero Future Energy teams involved Documentation review	In keeping with milestones identified in agreement

The monitoring records will be duly signed by the EHS, HR, compliance, contract & Legal representatives and will be submitted to ESG MF committee for review. The contractor and the contractual workers will be informed of the recommended measures to close the gaps. If minor non-compliance is observed more than two times a warning may be issued to the contractor. In case of grave non-compliance (such as engagement of work without a labour license) will deem in immediate termination of the contract.

Audits will be undertaken for contractor performance on E&S aspects and non-compliance to them would result in penalties as per SOW and signed agreements with the contractors. Termination of contracts shall be considered in cases of repetitive non-compliances to national labour regulations and corrective actions recommended from the audits

## 13 APPENDIX M: Supplier Code of Conduct

HFE is strongly committed in observing the highest ethical standards in all its procurement activities - for equipment's and for services. With respect to HFE activities, suppliers are providers of the following:

### Site Preparation, Construction and Establishment Phase:

- Supply of switchyard equipment, transformers, electrical items, reinforcement steel, cement, building materials, wind turbines, solar panels, battery, and supporting accessories based on technical specifications etc.
- Trucks and cranes for transportation and movement of material and equipment to and within project site.

### Operations Phase:

Operations of Solar, wind, Transmission line

### 13.1 Objective

This Supplier Code of Conduct (SCC) has been prepared to provide clear summary of HFE expectation from the suppliers in all procurement related dealings. The SCC defines the non-negotiable minimum standards that we ask our suppliers to respect and to adhere to when engaging with Hero Future Energy. The SCC (in addition to the Code of Ethics) also enables HFE to engage with suppliers on the following:

- Material sustainability issues relating to their operations.
- Minimum criteria that should be met (includes compliance to local laws, zero tolerance to corruption and bribery)
- Transparency and accountability in procurement dealings.
- Monitoring of supplier performance; and
- Capacity building opportunities

### 13.2 Applicability

This Code of Conduct shall apply to all Suppliers, sub-contractors and to other entities acting on behalf of them.

Suppliers are required to familiarize themselves with this Code of Conduct to ensure successful working relations with HFE. Acknowledgement of the Code is a prerequisite in every contract for supply. Through the acceptance of the Purchase Order, referring to the Code, the Supplier commits that all its operations are subject to the provisions contained in this Code (among other E&S clauses included in the Contract Agreements with Hero Future Energy).

This Code, or the demonstration of its compliance, does not create any third-party beneficiary rights for the Supplier. The standards of the Code are in addition to, and not in lieu of, provisions of any legal agreement or contracts between suppliers and HFE.

#### 13.2.1 Human Rights

- Suppliers shall not use child labour/ forced/bonded labour, or use corporal punishment or other forms of mental and physical coercion as a form of discipline
- Wages and working time shall, at a minimum, comply with all applicable Indian laws and regulations on minimum wage, maximum permissible overtime work and overtime wages
- Suppliers shall support equal opportunities at the workplace; and
- Suppliers shall respect and support the free association of labour and employee rights to join a trade union were allowed by law

### 13.2.2 Environment, Health, Safety & Social

- Suppliers shall be compliant with relevant environmental laws and regulations
- Suppliers shall use resources (water, materials, energy) in an efficient manner and strive to minimize their impact on biodiversity, climate change and water
- Waste shall be managed responsibly, and steps shall be implemented to reduce, reuse, or recycle waste
- Suppliers shall demonstrate compliance with the policy and continuously strive to minimize health and safety risks
- Suppliers shall provide safe and healthy working conditions for their employees and contract workers; and
- Suppliers shall ensure that either their own or HFE Occupational Health & Safety Policy and Environment Health and Safety Policy is available to all employees and workers to access at any time.
- Compliance to all relevant requirements of the EC conditions and other studies undertaken (as applicable)

### 13.2.3 Fair Operating Practices

- The Supplier is expected to report to HFE any situation that may appear as a conflict of interest and disclose to HFE if any HFE employee or professional under contract with HFE may have an interest of any kind in the supplier's business or any kind of economic ties with the supplier.
- Suppliers shall not be involved in any form of corruption, bribery, and facilitation payments; and
- Suppliers shall operate in accordance with the principles of fair market competition

### 13.2.4 Quality & Safety

All products and services delivered to HFE shall meet the quality; health and safety criteria specified by HFE and shall be safe for their intended use

### 13.2.5 Emergency Preparedness

Suppliers shall make a reasonable effort to implement HFE emergency response programme (ERP) to address the most likely anticipated emergencies and provisions shall be made to mitigate such risks

## 13.3 Monitoring & Records

To facilitate the monitoring of suppliers' compliance with this Code of Conduct, HFE expects suppliers to:

- Develop and maintain all necessary documentation to support compliance with the required contract agreements and specified standards; such documentation must be accurate and complete. All the suppliers will be assessed as per the supplier assessment form as provided below.
- Provide HFE representatives access to relevant records, upon HFE request
- Allow HFE representatives to conduct consultation with the supplier's employees and with management separately.
- Allow HFE representatives to conduct announced and unannounced site visits of supplier locations
- Respond promptly to reasonable inquiries from HFE representatives in relation to the implementation of the Code of Conduct.
- Prior to finalizing the vendors, HFE to undertake supplier technical pre/self-assessment format.
- Supplier assessment form

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Supplier Assessment	Review Date:
Supplier	

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Address (Location Audited)

---

Phone/ Fax / E-mail

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Contact Person

---

Company Turnover

---

Total Components

---

Self-Certified Components

---

No. Of Employees

---

Sustainability

Refer Table SUSTAINABILITY (LEGAL , EMS & OHSAS) DOCUMENTATION provided below

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Auditor(s)

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Assessment Date

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**Audit Objective:**

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-

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**Vendor Specialized in:**

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-

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**Strong Points:**

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Comments:

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**Weak Points:**

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Comments:

**Supplier Capability Level:**

**Graphical Representation:**

1.1 - Management Responsibility	CONDITIONAL
1.2 - Quality Management System:	Low
2.1 - Availability of Drawing & Inspection Checklist	High
2.2 - Ability to Understand Part Drawings:	Low
3.2 - Component & Raw Material Storage:	Medium
3.3 - Incoming Inspection:	Medium
3.4 - Traceability:	Medium
4.1 - Competence over Manufacturing Processes:	Medium
4.3 - Work Instructions:	Low
4.4 - Operator Training:	CONDITIONAL
8.2 - End Product Inspection:	High
5.1 - Measurement Calibration System:	Low, Medium
5.2 - Tooling & Equipment Maintenance System:	Medium
7.1 - Machine & Tooling maintenance system:	Low
8.1 -First Piece & In-Process Inspection:	Medium
<b>Total Obtained Score</b>	<b>22.55</b>
<b>Maximum score</b>	<b>32</b>

**Quality Audit Conclusion:**

<b>&gt;20</b>	<b>&gt;15 &amp; &lt;20</b>	<b>&gt;6 &amp; &lt;15</b>	<b>&lt;6</b>
<b>Accepted</b>	<b>Conditional</b>	<b>Low</b>	<b>Rejected</b>

SUSTAINABILITY (LEGAL , EMS & OHSAS) DOCUMENTATION					
Sr No.	DESCRIPTION	Documents			REMARKS
		YES	NO	NA	
A	Legal Compliances				

1	Child Labor Policy.				
2	Minimum wages Policy.				
3	ESIC Policy.				
4	Consent to Operate certificate				
<b>B</b>	<b>EMS</b>				
1	Zero Discharge (Factory Act- 1974) certificate for hazardous/chemical waste liquid, which is generated during manufacturing process.				
2	SOP for waste Materials recycling/decomposed. If third party agency hired for running waste collection than further recycling / decomposed process.				
3	Annual / Monthly CO2 reduction record. (i.e., Energy saving record/Solar system installation)				
4	Rainwater harvesting / Water management system if any				
5	SOP for fabrication, Power coating, Painting and Preventive action plan to protect human as well environment from harmful chemical.				
6	SOP for End-of-Life cycle for final product.				
<b>C</b>	<b>OHSAS</b>				
1	Test certificate for drinking water.				
2	Stack emission report for Diesel Generator (DG).				
3	SOP and Checklist for Storage of Hazardous materials. (Eg- Petrol/Diesel/Paints/Chemical, LPG Cylinders)				
4	Employees & worker annual Health check - up record.				
5	Training record of worker who working on height above 5 Mtr.				
6	Emergency Exit Plan (EEP) and its Drill down or Training record.				
<p><b>Note: - Above documentation is applicable to both Vendors and its Sub-vendors. Its vendor responsibility to provide documents as per there products.</b></p>					

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Supplier Assessment

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1- GENERAL ORGANIZATION:



1.1 - Management Responsibility

Quality Culture and Management Commitment of the supplier					
	Inspect	React	Proactive		
Term	No Quality Policy Exists	Organization Chart exists.	Quality policy is documented, Signed & Dated.	Quality Policy is communicated, Understood & Implemented at all levels of the organization.	Organization Chart along with Quality Policy implemented
Notation	0	1	2	3	4
	Rejected	Conditional	Low	Medium	High
Score	1	% Weight Factor	10%		

1.2 - Quality Management System:

Term	No Defined Quality System	Partial Quality System Defined Not Equivalent to ISO-9000 (2000)	Quality System Defined Equivalent to ISO-9000(2000)	ISO-9000 (2000) Quality Certificate	ISO-9000 (2000) plus other Certificates (TS 16949, etc)
Notation	0	1	2	3	4
	Rejected	Conditional	Low	Medium	High
Score	2	% Weight Factor	20%		

1.3 - Work Station Condition:

Cleanliness and tidiness of production workstations					
Term	Workstations Dis-Organized	Some Workstations Organized	Workstations Organized Tools &	Evaluation of Workstation Efficiency part	Workstations

				Equipment Easily Available	Quality Goals & Objectives	Optimized 5-S applied
Notation	0	1	2	3	4	
	Rejected	Conditional	Low	Medium	High	
Score	3	% Weight Factor	40%			

1.4 - Communication Methods:

Methods for clients to communicate with the Supplier (production orders, tooling schematics, requests, etc.)						
Term	Telephone & Fax No English Skills	Telephone & Fax Basic English Skills	Telephone, Fax, Email Basic English Skills	Telephone, Fax, Email Strong English Skills	Telephone, Fax, Email, Internet site, FTP site Strong English Skills	
Notation	0	1	2	3	4	
	Rejected	Conditional	Low	Medium	High	
Score	4	% Weight Factor	10%			

1.5 - Customer Documentation:

Client order entry, logistics information, technical specifications, quality requirements, contracts, etc.						
Term	No System to Record Client Information	Partial Paper System exists	Documents only related to Logistics; Quality & Technical Needs documented via Paper System	Complete records Documented via Paper System	Complete records Documented electronically in ERP system	
Notation	0	1	2	3	4	
	Rejected	Conditional	Low	Medium	High	

Score	2	% Weight Factor	20%
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Comments

2- DRAWING & REVISION CONTROL

2.1 - Availability of Drawing & Inspection Checklist

Term	No Drawing & Inspection checklist available	Partial Drawing & Inspection checklist available	All drawings & Inspection checklist available but no revision updates available	All drawings & Inspection checklist available with latest revision updates on purchase Orders also	All drawings & Inspection checklist available with latest revision updates on purchase Orders & all master samples available.
Notation	0	1	2	3	4
	Rejected	Conditional	Low	Medium	High
Score	4	% Weight Factor	75%		

2.2 - Ability to Understand Part Drawings:

Knowledge, understanding and utilization (within control plans) of the international drawing standards ISO 8015, 2768, etc.

Term	No Competence	Awareness only	Tolerance Data Available	Tolerance data available & used regularly	High level of competence in understanding of drawings
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Notation	0	1	2	3	4
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	Rejected	Conditional	Low	Medium	High
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Score	2	% Weight Factor	25%		
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Comments

3- PROCUREMENT: INCOMING RAW MATERIAL CONTROL

3.1 - Material Procurement:

System to ensure materials purchased satisfy client needs

Term	No identified system in-place	Manual purchase of materials No review of client needs	Manual purchase of materials Manual review of materials for client needs	Material inventory & purchase controlled via MRP system	Plus: Safety Stock for key materials Automated material shortage or delay warnings from ERP
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Notation	0	1	2	3	4
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	Rejected	Conditional	Low	Medium	High
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Score	2	% Weight Factor	20%		
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3.2 - Component & Raw Material Storage:

Control over storage of parts & raw materials

Term	No Defined Stock Management Control System Identified	Component Stocks Controlled Raw Materials Not Controlled	Standard Control of all Stocks non-FIFO	Stocks under Traceability System FIFO	Control over Shelf-Life Control
------	---	---	---	---------------------------------------	---------------------------------

						over Ambient Needs Traceability until use of the part
Notation	0	1	2	3	4	
	Rejected	Conditional	Low	Medium	High	
Score	3	% Weight Factor	20%			

### 3.3 - Incoming Inspection:

Means to verify raw materials or purchased components						
Term	No Inspection Capabilities Exist	Minimal Inspection Capabilities Cannot Evaluate Basic Purchases	Inspection Capabilities Exist No Inspection Procedures Used	Inspection Capabilities Exist Verification of RM done Incoming Inspection Procedures Used	Inspection Capabilities exists Verification of RM done Sampling Based upon AQL	
Notation	0	1	2	3	4	
	Rejected	Conditional	Low	Medium	High	
Score	3	% Weight Factor	30%			

### 3.4 - Traceability:

Information on key process steps, raw materials, operators, equipment, tooling, test results, etc....						
Term	No Identified Traceability System	Partial Traceability System, but not all Key Variables Recorded	Basic Traceability for Key Variables each batch (materials, date code, packaging,	Detailed traceability Recorded per batch	Detailed traceability Recorded on part basis Serial Number	

process parameters, etc.)

	Notation	0	1	2	3	4
		Rejected	Conditional	Low	Medium	High
Score	3	% Weight Factor	15%			

3.5 - Brought Out Raw Material Control:

Means to verify raw materials or purchased components

	Term	No Quality plan exists for brought out items	Quality plan & checklist available for Brought out components	Pre-dispatch inspection report of sub-contractors available	Incoming material inspection & records available as per Quality plans	Incoming material inspection & records available as per Quality plans. Subcontractors audit & evaluation carried out
	Notation	0	1	2	3	4
		Rejected	Conditional	Low	Medium	High
Score	2	% Weight Factor	15%			

Comments

4- MANUFACTURING PROCESSES

4.1 - Competence over Manufacturing Processes:

Knowledge of critical steps in manufacturing process, and application of process controls

	Term	No awareness of process Layout	Awareness of critical steps mentioned in Process Layout. Minimal controls in-place	Awareness of Process Layout Quality controls monitor performance	Process layout implemented at all levels. Support Personnel Dedicated to Process Continual Improvement	Process Technical Expertise Mfg Process is "Mastered" DMAIC or Six-Sigma visible in facility
	Notation	0	1	2	3	4
		Rejected	Conditional	Low	Medium	High
Score	3	% Weight Factor	40%			

4.2 - Industrial Equipment:

Machine Capabilities (Information on equipment capabilities for the specific commodity under evaluation)						
	Term	No Information on Equipment Capabilities	Partial Equipment Information Exists, but no Recent Data	Standard Precision Manual Equipment	Standard Precision Automated Equipment	Fine Precision Equipment Integrated Capability Data Acquisition
	Notation	0	1	2	3	4
		Rejected	Conditional	Low	Medium	High
Score	4	% Weight Factor	10%			

4.3 - Work Instructions:

Manufacturing work instructions are available for each process

Term	No Work Instructions Available at Workstations	Partial Work Instructions Available Not Easily Available to Operators	Basic Description of Each Task Available to Operators	Necessary Detail to Explain Potential Problems with Tasks Used by Operators. Offloaded process layout the same also captured	Offloaded process Layout Captured. Acceptance Criteria Clearly Defined & used by Operators
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Notation	0	1	2	3	4
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	Rejected	Conditional	Low	Medium	High
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Score	2	% Weight Factor	30%		
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4.4 - Operator Training:

Training system identifies which operators are trained for each manufacturing process

Term	No Documentation for Operator Training	Partial Documentation of Operator Training for Specific Equipment	Complete Operator Training Documentation for all Equipment (What, Who, how.)	Ability to Monitor Efficiency of Operators Competence is Recognized	System for Continual Improvement of Operator Efficiency Consequences to Customer Understood
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Notation	0	1	2	3	4
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	Rejected	Conditional	Low	Medium	High
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Score	1	% Weight Factor	20%		
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Comments



5- TOOLINGS & MEASURING INSTRUMENTS

5.1 - Measurement Calibration System:

System to ensure that gauges, fixtures, and measurement equipment are under calibration

Term	No Calibration System	Partial Calibration System No Evidence Applied to all Devices	Calibration System for all Measurement Devices	Assessment for Non-Conforming Results Knowledge of GR&R	Preventative Actions using Statistical Data Efficiency of Gauges & Fixtures Periodically Evaluated
Notation	0	1	2	3	4
	Rejected	Conditional	Low	Medium	High
Score	3	% Weight Factor	40%		

5.2 - Tooling & Equipment Maintenance System:

System to ensure that production tooling & equipment provides acceptable part quality

Term	No Tooling & Equipment System	Partial System Not Applied to all Tools/Equipment	Maintenance System for all Tools & Equipment (based upon time/use variable)	Preventative Maintenance System, including improvement loop	Preventative Maintenance System Based upon Statistical Data
Notation	0	1	2	3	4

		Rejected	Conditional	Low	Medium	High
Score	3	% Weight Factor	40%			

5.3 - Tooling Storage & Protection: How are L & T tools stored and protected at supplier location?

Term	No Tool Storage or Identification System Exists	Tool Identification Exists No Specific Location for Tool Storage	Dedicated Location for Tool Storage	Specific Location for MS Tools	Tool Storage Protected from Damage, Fire, Flood, etc
Notation	0	1	2	3	4

		Rejected	Conditional	Low	Medium	High
Score	3	% Weight Factor	20%			

Comments

6- QUALITY: QUALITY INDICATORS

6.1 - Customer Satisfaction:

How is Customer Satisfaction Measured and Managed?

Term	No Customer Satisfaction Indicators Exist	Partial Customer Satisfaction Indicators Initiated by Customer Requests	Customer Satisfaction Indicators Exist Monitored by Management	Customer Satisfaction Improvement Included in Quality Goals & Objectives	Permanent Focus on Customer Satisfaction Improvement
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			Not Reviewed by Management			Demonstrated
	Notation	0	1	2	3	4
		Rejected	Conditional	Low	Medium	High
Score	3	% Weight Factor	50%			

6.2 - Supplier Quality & Delivery Indicators:

What sub-supplier quality indicators exist?

	Term	No Supplier Indicators Exist	Partial Supplier Quality Indicators Exist	Supplier Quality Indicators Exist Monitored by Management	Supplier Quality Improvement Included in Quality Goals & Objectives Evidence of Corrective Actions with Suppliers	Permanent Focus on Supplier Quality Improvement Demonstrated
	Notation	0	1	2	3	4
		Rejected	Conditional	Low	Medium	High
Score	3	% Weight Factor	50%			

Comments

7- MACHINE & TOOLING MAINTENANCE SYTEM

7.1 - Machine & Tooling maintenance system:

	Term	No maintenance system exists	List of machines & tooling available for maintenance	Preventive action done but not monitored	Preventive maintenance Calendar & checklist available	Preventive maintenance Calendar & checklist available, periodically updated & recorded.
	Notation	0	1	2	3	4

		Rejected	Conditional	Low	Medium	High
Score	2	% Weight Factor	100%			

Comments

8- INSPECTION

8.1 -First Piece & In-Process Inspection: System for verifying conformance to quality control plan during production

	Term	No Inspection Facility available	Inspection Facility available, but no evidence of Inspection	Go, No-Go Inspection tools used for first piece & in process Inspection No Data	Data collected and monitored	SPC process tools used AND continual improvements exist
	Notation	0	1	2	3	4
		Rejected	Conditional	Low	Medium	High
Score	3	% Weight Factor	50%			

8.2 - End Product Inspection: System for verifying conformance to customer requirements before shipment

Term	No Inspection Capabilities	Inspection Capabilities, but no evidence of Inspection	Go, No-Go Inspection tools used No Data	Data collected and monitored	SPC process tools used AND continual improvements exist
Notation	0	1	2	3	4
	Rejected	Conditional	Low	Medium	High
Score	4	% Weight Factor	50%		
Comments					

Supplier Assessment						
	Score	Weighting factor	Assessment	Score Average	Capability	
<b>GENERAL ORGANIZATION:</b>				2.50		
1.1 - Management Responsibility	1	10%	0.1		CONDITIO NAL	
1.2 - Quality Management System:	2	20%	0.4		Low	
1.3 - Work Station Condition:	3	40%	1.2		Medium	
1.4 - Communication Methods:	4	10%	0.4		High	
1.5 - Customer Documentation:	2	20%	0.4		Low	
		100%				
<b>DRAWING &amp; REVISION CONTROL</b>				3.50		
2.1 - Availability of Drawing & Inspection Checklist	4	75%	3		High	
2.2 - Ability to Understand Part Drawings:	2	25%	0.5		Low	

		100%				
<b>PROCUREMENT: INCOMING RAW MATERIAL CONTROL</b>				2.65		
3.1 - Material Procurement:	2	20%	0.4			
3.2 - Component & Raw Material Storage:	3	20%	0.6		Medium	
3.3 - Incoming Inspection:	3	30%	0.9		Medium	
3.4 - Traceability:	3	15%	0.45		Medium	
3.5 - Brought Out Raw material Control:	2	15%	0.3			
		100%				
<b>MANUFACTURING PROCESSES</b>				2.40		
4.1 - Competence over Manufacturing Processes:	3	40%	1.2		Medium	
4.2 - Industrial Equipment:	4	10%	0.4			
4.3 - Work Instructions:	2	30%	0.6		Low	
4.4 - Operator Training:	1	20%	0.2		CONDITIO NAL	
		100%				
<b>TOOLINGS &amp; MEASURING INSTRUMENTS</b>				3.00		
5.1 - Measurement Calibration System:	3	40%	1.2		Low, Medium	
5.2 - Tooling & Equipment Maintenance System:	3	40%	1.2		Medium	
5.3 - Tooling Storage & Protection:	3	20%	0.6			
		100%				
<b>QUALITY : QUALITY INDICATORS</b>				3.00		
6.1 - Customer Satisfaction:	3	50%	1.5		Low, Medium	
6.2 - Supplier Quality & Delivery Indicators:	3	50%	1.5		Medium	
		100%				

MACHINE & TOOLING MAINTENANCE SYTEM				2.00		
7.1 - Machine & Tooling maintenance system:	2	100%	2		Low	
		100%				
INSPECTION				3.50		
8.1 -First Piece & In-Process Inspection:	3	50%	1.5		Medium	
8.2 - End Product Inspection:	4	50%	2		High	
		100%				
		Score	Maximum	Recommend ed		
GENERAL ORGANIZATION:		2.5	4	2		
DRAWING & REVISION CONTROL		3.5	4	2		
PROCUREMENT: INCOMING RAW MATERIAL CONTROL		2.7	4	2		
MANUFACTURING PROCESSES		2.4	4	2		
TOOLINGS & MEASURING INSTRUMENTS		3.0	4	2		
QUALITY : QUALITY INDICATORS		3.0	4	2		
MACHINE & TOOLING MAINTENANCE SYTEM		2.0	4	2	Total	Max
INSPECTION		3.5	4	2		32

Action Plan			
Sr. no.	Area	Details	Target Date
1			
2			
3			
4			
5			

## 14 APPENDIX N: Community Health and Safety

The receptors for impacts on community health and safety will include settlements located in proximity to the project site, access roads, transmission route.

The construction phase activities such as levelling of land, use of heavy machinery, setting up of the projects and development of ancillary facilities (such as batching plant, labour camp) will lead to noise and dust emission that may have potential risks such as respiratory and hearing problems to the nearby community especially to pregnant women, infants, and senior citizens. Furthermore, transportation of construction material through state highway and access road may result in injuries to people or livestock due to accidents. In case of fire hazards at the project site, settlements located in close vicinity (within 500 m) of the project are envisaged to be negatively impacted. Installation of transmission towers may also pose accidental and electrocution risks to community.

The community health and safety concerns as mentioned above would be consistent across the Project life cycle and therefore the impacts would be similar in nature. The community health and safety related risks relevant to wind power industry includes risk of Shadow Flicker to nearby communities from WTG's, noise, blade and ice throw, electromagnetic interference and radiation, aviation radar, telecommunication systems, television, and public access.

Additionally, health and safety concerns to the community from Round-The-Clock energy storage include leakage, fire, smoke and, in a worst-case scenario, explosion (risks have been assessed for Li-ion batteries).

### 14.1 Scope of the Framework

The Community Health and Safety plan has been developed with the purpose of minimizing varying degrees of impact on community health and safety caused due to construction and operation activities undertaken at Project Sites. This will be done within the context of meeting national requirements and standards, and the requirements of the IFC Performance Standards (IFC PS).

### 14.2 Objective

- Provide guidance on the mitigation measures for ensuring safe conduct at Project Sites
- Outlines control measures to prevent health and safety accidents at project Sites

### 14.3 Applicable Reference Framework

#### International Standards

- IFC Performance Standard 4: Community Health, Safety and Security

### 14.4 Impact Management

- Labour management plan (comprising of measures for maintaining relations with labour and community) will be implemented (Refer- Appendix- O).
- As part of the stakeholder engagement, the community will be provided with an understanding of the activities to be undertaken during construction phase and the precautions taken for safety.
- The project will also propagate emergency scenarios and health awareness amongst the community including pregnant women and senior citizens. Further, shall provide the creche facilities as per the requirement of Indian regulations
- Measures to avoid hearing problem among community residing in proximity to the proposed project will be adopted.
- The traffic movement for the project in the area will be regulated to ensure road and pedestrian (including livestock) safety.



- Dedicated route for deployment of heavy-duty vehicles should be defined.
- Put in place a grievance mechanism to allow for the workers and community members to report any concern or grievance related to project activities.
- Dedicated safety sign boards in local language should be provided around the project site and under construction transmission tower location and other associated facilities of Renewable Energy Project Portfolio.
- Vehicles sourcing construction materials should be covered to avoid dust emission.
- The consequences of emergency events are likely to extend beyond the project boundary and it can also affect community health and safety due to labour influx. Emergency Response Plan developed for the Project should be communicated to the nearby community.
- Ensure pollution norms compliant vehicles are used for transportation.
- Any road diversions and closures will be informed in advance to the local community. Appropriate communication to avoid Usage of horns by project vehicles near sensitive receptors such as schools, settlements etc. Will be provided.
- Adequate training on traffic and road safety operations will be imparted to the drivers of project vehicles. Road safety awareness programs will be organized in coordination with local authorities to sensitize target groups viz. school children, commuters on traffic safety rules and signage.
- Adaptive measures to decrease noise pollution from WTGs should be undertaken, such as vibration suppression, vibration isolation and fault detection for mechanical noise, and adaptive approaches and wind turbine blade modification methods for aerodynamic noise reduction.
- Locational suitability to be undertaken before installation of WTGs to reduce impact on local community from shadow flicker. Additionally, customized turbine shutdowns would help reduce shadow flicker at peak hours.
- Fire Safety plan should be developed, and fire hazards should be identified, especially for RTC Batteries. Fire extinguishers should be placed at adequate locations and should be maintained regularly.
- To keep in line with the procedures to manage impacts on community health and safety, HFE shall ensure to organize trainings for the workers, contractors, sub-contractors, and own team. This training aims to spread awareness and educate the stakeholders on best practices to ensure minimal impact on the community as well as to help disseminate the corporate policy of HFE regarding Health Safety. This training is to be held monthly.

## **14.5 Roles and Responsibilities**

The EHS Manager will be responsible for ensuring the aforementioned trainings are conducted in a timely manner and will also be responsible for maintenance of records of trainings and community Health and Safety Incidents. Additionally, the EHS manager is also responsible for overall implementation of impact management standards as mentioned in this framework.

## **14.6 Records**

The EHS Manager must maintain records of all trainings provided along with details on frequency, attendees, trainer, and location. Additionally, a record should be maintained of any community health and safety incidents.

## 15 APPENDIX O: Labour Management

The labour Management Plan has been developed with the purpose of protecting the health, safety, and wellbeing of HFE workforce, whilst also working to promote equal opportunity and non-discrimination in HFE and its contractor's workforce management. If HFE and a workers' organisation have a collective bargaining agreement, that agreement will be honoured. HFE will offer reasonable working conditions and terms of employment in the absence of such agreements or if they do not address such matters. HFE will identify migrant workers and make sure they are employed under terms and conditions that are essentially equivalent to those of non-migrant workers doing similar employment. This will be done within the context of meeting national requirements and standards, and the requirements of the IFC Performance Standards (IFC PS).

### 15.1 Scope of the Framework

The scope of this labour management plan covers both the construction and operational phases of each project. The labour management plan specifically includes measures related to the management of workers engaged by third parties and the management of workforce related risks. It is further applicable across the entire workforce, at all skill levels and it deals with all aspects relating to HFE employees including recruitment, management of worker relationships.

### 15.2 Objectives

- Outlines workforce management measures (e.g., induction training and worker health)
- Aim to mitigate and manage influx
- The management plan aims to provide guidance on the reporting and monitoring of labour management conditions with respect to key issues identified and expected impacts
- Enlists the varied roles and responsibilities of differing parties involved in labour management practice
- Provides detailed explanation on Labour working conditions and terms of employment
- Encourages the equal opportunity, non-discrimination, and fair treatment of employees
- To safeguard employees, particularly those in vulnerable groups including youngsters, migrant workers, those hired by outside parties, and those who are part of a HFE supply chain.

### 15.3 Applicable Reference Framework

There is a wide array of central and state level regulations that cover every aspect of labour related issues. These Acts are further supplemented by rules, notifications and standing orders of the central and state governments. Aspects like minimum wage rate, working hours, and welfare benefits get revised and updated from time to time. Therefore, it is important to keep track for the most recent developments in amendments of labour laws and rules. Acts and regulations pertaining to the migrant workers assume much more importance especially in the Indian context, wherein migrant workers constitute a huge section of the building and construction activities, or for that matter any form of labour-intensive activity. The plan, therefore, captures almost all the key laws and regulations pertaining to the management of labour issues in the country.

#### 15.3.1 National and State Acts

Refer to section **Error! Reference source not found.** for applicable national and state acts.

#### 15.3.2 IFC Performance Standards

- Performance Standard 2: Labour and Working Conditions
- Performance Standard 4: Community Health, Safety and Security

## 15.4 Aspects for Ensuring Proper Labour Management

- HFE must have policies and processes covering a variety of HR issues to ensure effective and equitable management of employees. The policies' scope and depth should be adapted to the workforce's size and makeup. These guidelines and practices ought to include all types of employees, including those employed as direct employees, contract employees, and supply chain employees. Policies in place should, at the very least, adhere to IFC Performance Standard 2 and local labour law regulations. To maintain consistency, these processes must be updated and integrated into the company's entire management system. The set of policies to be developed is below:
  - Human resource Policy
  - Working Relationship Policy
  - Working Conditions & Terms of Employment Policy
  - Workers' Organizations
  - Non-Discrimination & Equal Opportunity
  - Retrenchment
  - Grievance Mechanism
  - Child Labour
  - Forced Labour
  - Occupational Health & Safety
  - Non-Employee Workers
- The HR policy should also include statements on workers' right to privacy relevant to HFE business operations. This should include.
  - Notification: notification to workers on the data collection process and the type of data collected.
  - Purpose: the purpose of collecting the data.
  - Consent: data should not be disclosed without the worker's consent.
  - Security: data should be kept secure and confidential.
  - Disclosure: workers should be informed as to who is collecting their data.
  - Access: workers should be allowed to access their data and make corrections to any inaccurate data.
  - Accountability: workers should have a method available to them to hold data collectors accountable for following the above principles. Data should only be collected and used for reasons directly relevant to employment; all medical data remains confidential. If workers are being filmed, or will be body searched, or if other surveillance methods are to be used, they should be informed, and the reasons explained for these procedures. Any such method should follow the principle stated above and should be conducted in ways that are not intimidating or harassing for the workers.

## 15.5 Labour Management – Key Issues

The typical labour management issues that arise during construction phase include the issue of local labour employment, and their living and working conditions, influx of migrant population, labour camps and related facilities. Additionally, there are some issues that remain persistent throughout the construction as well as operation phase, such as HR and labour related compliances, onsite health, and safety management of workforce.

### 15.5.1 Working hours and compensation

The Contractor will assign a Human Resource Executive to handle compensation matters, including salary and overtime payments. Periodic audits of record books will be conducted by the EHS Officer or Human Resources Manager of HFE to ensure compliance with legislative requirements such as the Factory Act and state-specific Factories Rules. During construction, adherence to the provisions of the Building and Other Construction Workers Act, 1996 will be ensured.

The Contractor's HR personnel, in coordination with HFE project EHS Officer or HR Manager, will ensure that women employees receive mandatory holidays and maternity leave as required by law. Additionally, all employees will be granted one day off per week, and overtime work will be recorded accurately. No worker will exceed 48 hours of work per week, with any overtime hours being consensual and compensated at a premium rate.

Daily wages will be paid to workers in legal tender, either in person or directly into their bank accounts, with proper records maintained for direct payments. Sign-in and sign-out times will be recorded to account for overtime payment or compensatory leave owed to employees.

Employees will be entitled to a half-hour break after every five hours of work, as mandated by the Factory Act 1948. Any grievances regarding overtime payment can be addressed through the Grievance Redressal Mechanism outlined in the procedure.

### 15.5.2 Child and Bonded Labour

The site management is strictly prohibited from engaging in any form of child labor during any phase of facility operations. The Environmental Health and Safety (EHS) Officer is tasked with ensuring that no worker below the age of 18 is employed by the contractor on the premises. To enforce this, the contractor's HR representative must request proof of age at the time of hiring, which may include various official documents such as birth certificates or personal identification cards. Copies of these documents must be maintained throughout the duration of employment. In cases where the required documents are unavailable, alternative methods such as school leaving certificates or affidavits from local village representatives may be used to verify age. The contractor's HR Executive is responsible for establishing, documenting, maintaining, and communicating policies and procedures for remediating underage employment situations, as required by Indian law and this procedure. If any underage employees are discovered, the contractor must promptly remove them from the workplace. Furthermore, the EHS Officer will conduct a job risk assessment to identify hazardous work assignments, such as working at heights or in confined spaces, to ensure the safety of all workers.

### 15.5.3 Discrimination, Harassment/Abuse and Freedom of Association

Employment discrimination occurs when someone is unfairly treated or prevented from applying for a job for reasons unrelated to the job requirements or protected characteristics like age, disability, ethnicity, gender, gender identity, height, nationality, religion, sexual orientation, skin color, and weight. HFE will promote this principle through workshops, posters, and other forms of communication to its workers and contractors. Contractors' HR Executives will ensure through training workshops and posters that discrimination on site is not practiced.

HFE and contractors are committed to treating all employees equally, regardless of disability, ensuring that differently abled employees receive fair treatment. Discrimination based on caste, faith, or gender is strictly prohibited, and any such behaviour will be met with disciplinary action, including written warnings and administrative hearings.

Any grievances related to discrimination will be addressed promptly by the Contractor and EHS Officer, or escalated to leadership, if necessary, to prevent discord among employees. Workers will also be informed of their right to Freedom of Association, and training sessions will be conducted to create an environment conducive to collective bargaining, involving the E&S Officer, HR Manager of HFE, and contractor HR executives.

### 15.5.4 Working Conditions, Terms of Employment and Voluntary Employment

The EHS Officer will ensure that contractors are informed about and follow the 'Working Conditions & Terms of Employment' set by HFE. During construction, both the EHS Officer and contractors will ensure that national legislative and international standards for working conditions are met. All workers will receive clear terms of

employment, including direct employees who will be provided with written appointment letters, ID cards, and HR policy copies. Workers' rights to 'Freedom of Association' will be communicated by HFE and contractors' HR teams.

The Contractor's HR Executive will maintain records of migrant labor and hold regular meetings with them to address any specific grievances. Workers are entitled to a congenial working environment, and provisions for breaks in high-temperature or challenging environments will be established. Access to clean drinking water and toilet facilities will be provided by the contractor. Both HFE and contractors will take necessary precautions to protect workers, including preventing workplace violence, providing adequate training and supervision, maintaining equipment and protective devices, offering health and safety representatives, and regularly reviewing and implementing occupational health and safety policies. These measures apply to workplaces with a regular workforce.

#### 15.5.5 Work Environment

HFE should create a healthy and safe work environment in accordance with the rules and regulations mentioned in the "Applicable Reference Framework" section of this management plan at a central corporate level as well as at the project site level.

#### 15.5.6 Bribery and Corruption

HFE shall adopt and apply a policy with clear rules on gifts, services, entertainment, or other advantages. All should act ethically in all situations and not accept any bribery or involve in corrupt activities, as specified under the Companies Act 2013.

#### 15.5.7 Behavioural Standards

While working at site, the construction labour should act in a socially responsible manner and treat all employees with respect, empathy, and care. The construction labour shall demonstrate acceptable behavioural standards. Unacceptable behaviour will result in disciplinary action against the guilty. The HR In charge will ensure disciplinary action is taken in case of non-compliance to set behavioural standards. Repeated instance of unacceptable behaviour will result in immediate termination of employment and removal from the site.

#### 15.5.8 Use of PPEs

All labour is required to wear appropriate clothing, hard hats, and safety footwear while on the construction site and during operation phase.

#### 15.5.9 Smoking and Alcohol Consumption

Smoking is not to be permitted in any enclosed area on project site, including labour accommodation, kitchen premises, and toilets. Alcohol is to be prohibited on all project sites, including plant site, construction areas, labour accommodation, kitchen premises and toilets, except for designated areas.

#### 15.5.10 Emergency Situation

The contractor should inform the labour about emergency preparedness plan and communication system to be followed during emergency. The site specific EHS in charge will be responsible for ensuring the guidelines are being implemented and followed.

### 15.5.11 Health and Safety

The contractor should ensure that labour receive training on health and safety issues involved in the proposed project from time to time. Health Check-up is mandatory for all workers while induction for project work followed bi-annually by subsequent check-ups on site. Workers with communicable diseases should be restricted from interacting with local people and other workers till they have completely recovered.

### 15.5.12 Conflict with Community

Labour should not involve in any sort of conflicts with local communities/villagers and report any such incident to the contractors or reporting managers immediately. Labour should not get involved in riots, thefts or other criminal offences while employed.

### 15.5.13 Terms of Employment

Labour must be informed about their wages and benefits as prescribed by law. On-going communication and training on legal labour rights and company personnel policies should be undertaken. Training on minimum legal benefits for all workers, including contractors and employment agencies should be provided. HFE should define terms of employment and establish a transparent process for sharing the same with each new worker.

### 15.5.14 Retrenchment

Policy and procedure for workforce reduction, including worker selection along with analysis of alternatives for workforce reduction should be implemented. Additionally, workers should be engaged in discussions related to workforce. Contractors should prepare a lay-off plan, especially if the local community is engaged as labourers.

### 15.5.15 Workers' Organisation

HFE must communicate to workers their rights to collective bargaining. Workers must be allowed to raise workplace related issues via the established Grievance Redressal Mechanism. Regular trainings on worker-manager communications must be held on a quarterly basis. All communication with local unions should be documented monthly.

### 15.5.16 Workers' Accommodation

Project and its contractors shall abide by all applicable rules and regulations pertaining to the design and construction of the workers' accommodation building or structure as well as facilities to be provided therein while planning for the accommodation (refer **Appendix T**).

## 15.6 Trainings

To keep in line with the general conditions of labour management, HFE shall ensure to organize trainings for the workers, contractors, sub-contractors, and own team. Training should be provided to all workers on relevant aspects of OHS associated with their daily work, including emergency arrangements and OHS briefing for visitors and other third parties accessing the premises. These trainings aim to spread awareness and educate the workforce on best practices for labour management as well as to help disseminate the corporate policy of HFE regarding labour management. These trainings are to be held monthly.

- The following trainings must be provided.
- Anti-Discrimination Training
- Healthy Work Environment Training
- Anti-Bribery and Anti-Corruption Training

- Training on Behavioural Standards
- Training of use of PPEs
- Training on Emergency Response
- Training on Health and Safety onsite as well as offsite

## 15.7 Monitoring Mechanism

The project shall implement the monitoring based on the monitoring indicators provided in the table below:

Sr. No.	Guiding Principles	Desired Actions	Special Remarks and Suggestions	Monitoring Indicators
<b>Human Resource Policies</b>				
1.	<ul style="list-style-type: none"> <li>• Project and its contractor shall have a documented policy and procedure related to human resources</li> <li>• Project and its contractor will inform workers of their rights under national labour and employment laws</li> <li>• Policy must be clear and understandable to all workers</li> </ul>	<ul style="list-style-type: none"> <li>• Centrally organize all policies and procedures</li> <li>• Identify and record responsible person and last date modified</li> <li>• Conduct an annual review of all policies and procedures</li> <li>• Prominently display policies and procedures in all local languages, especially which the staffs and workers understand</li> <li>• Appoint a person responsible for monitoring policies and procedures related to labour law implementation</li> <li>• Implement standardized routine training</li> </ul>	<ul style="list-style-type: none"> <li>• Contractor shall be required to put in place a well-defined and documented Human Resource policy at the outset of the project in order to ensure efficient and fair management of workers engaged in the overall process of work. In case the contractor has existing GR policy, the same can be made applicable for the workers to be engaged for the Project</li> </ul>	<ul style="list-style-type: none"> <li>• Complete review of all policies and procedures</li> <li>• Review of management – worker committee meeting minutes</li> <li>• Communication (memos, letters, etc.) to workers, suppliers, contractors, and multi-stakeholder groups</li> <li>• Interviews with management and workers</li> <li>• Interviews with external stakeholders</li> <li>• Budget related to implementing labour policy</li> <li>• Training curricula and logs</li> </ul>
<b>Working Relationship Policy</b>				
2.	<ul style="list-style-type: none"> <li>• Project &amp; its contractors will document and communicate working conditions and terms of employment to all workers</li> <li>• Wages and benefits must be clearly communicated and</li> </ul>	<ul style="list-style-type: none"> <li>• Provide all workers with a contract in their native language</li> <li>• Provide documented training on contracts, wages, benefits, and deductions for all workers</li> <li>• Routinely provide workers with a clear record of pay calculations in the form of wage slips</li> </ul>	<ul style="list-style-type: none"> <li>• The working relationship policy can be a separate document, or it can be integrated with the HR policy. The working relationship policy will essentially ensure</li> <li>• Coverage of each category of workers including direct workers, contract workers and supply chain workers who</li> </ul>	<ul style="list-style-type: none"> <li>• Contracts for all workers</li> <li>• Policies and procedures related to worker contracts and wages</li> <li>• Communication and training on wage calculation, including local laws</li> <li>• Payroll records, time sheets</li> <li>• Piece rate or performance pay calculations verified</li> </ul>

Sr. No.	Guiding Principles	Desired Actions	Special Remarks and Suggestions	Monitoring Indicators
	understood by all workers		will be engaged in operation <ul style="list-style-type: none"> <li>Consistent with regulatory requirements on labour as per the national and state labour regulations:</li> </ul>	against minimum wage <ul style="list-style-type: none"> <li>Worker interviews</li> </ul>

#### Working Condition and Terms of employment

3.	<ul style="list-style-type: none"> <li>If there is a collective bargaining agreement, project &amp; its contractors will respect its terms</li> <li>Project &amp; its contractors must provide reasonable working conditions and terms of employment, at a minimum complying with the various local laws as described in this plan</li> </ul>	<ul style="list-style-type: none"> <li>On-going internal verification that all workers are receiving wages and benefits as prescribed by law</li> <li>On-going communication and training on legal labour rights and company personnel policies</li> <li>Worker representatives meets regularly with HR and company management</li> <li>Training on minimum legal benefits for all workers, including contractors, and employment agencies</li> </ul>	<ul style="list-style-type: none"> <li>Defined Terms of Employment and procedure for sharing the same with each new worker in a transparent manner</li> <li>Procedure for establishing and updating records of employment relationship conditions.</li> </ul>	<ul style="list-style-type: none"> <li>Collective bargaining agreement (if one exists)</li> <li>Worker contracts</li> <li>Policies and procedures related to wages, benefits, hours, and leave</li> <li>Wage calculations as they relate to local laws</li> <li>Worker and external stakeholder interviews</li> <li>National law as it relates to wage and benefit minimums</li> <li>Employment and termination records</li> </ul>
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#### Workers' Organization

4.	<ul style="list-style-type: none"> <li>Project &amp; its contractors will recognize workers' rights to form and to join workers' organizations</li> <li>Project &amp; its contractors cannot interfere with or discriminate against workers who choose to organize</li> <li>Worker representatives must have</li> </ul>	<ul style="list-style-type: none"> <li>Clear communication to workers on their rights to collective bargaining</li> <li>Allow workers to raise workplace related issues</li> <li>Regular training on worker-manager communications</li> <li>Regular meetings of management and worker representatives</li> <li>Periodic documented communication with</li> </ul>	<ul style="list-style-type: none"> <li>The purpose of forming a trade union/workers organization is to create a platform for collective bargaining to protect the interest and rights of the workers with regard to working conditions and the terms of employment. The contractors will have to abide by the Indian regulations on provision for trade union and the</li> </ul>	<ul style="list-style-type: none"> <li>Documented policy regarding collective bargaining</li> <li>Minutes and records from collective bargaining sessions, reviews, or other actions</li> <li>Procedure for workers to select worker representative without management interference</li> <li>Interviews with workers, NGOs, and trade unions</li> </ul>
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Sr. No.	Guiding Principles	Desired Actions	Special Remarks and Suggestions	Monitoring Indicators
	<p>access to management</p> <ul style="list-style-type: none"> <li>Worker organizations are expected to fairly represent the workforce</li> </ul>	<p>local unions and NGOs</p>	<p>workers should not be restricted by the contractors to form trade union if they wish.</p> <ul style="list-style-type: none"> <li>The construction phase is likely to engage migrant labour and is expected to be over in 15-18 months after getting started. During this phase, the labourer should be provided a suitable mechanism to raise their grievances and genuine work-related issues, alternatively allow them to create a platform for collective bargaining.</li> <li>During operational phase of the project, contractors will be required to consider following mentioned measures to ensure freedom of association for workers and provide them an alternate grievance mechanism</li> <li>The contractors shall have clear communication with the workers on their right to form trade union and collective bargaining</li> <li>There will be regular trainings on worker-manager communications</li> <li>There will be regular meetings of the contractor's management and their workers</li> </ul>	<ul style="list-style-type: none"> <li>Collective bargaining agreements</li> <li>Grievance mechanism</li> </ul>

**Non-discrimination and Equal Opportunity**

5.	<ul style="list-style-type: none"> <li>People should be hired, promoted, and compensated</li> </ul>	<ul style="list-style-type: none"> <li>Clearly define anti-discrimination policy in hiring, training,</li> </ul>	<ul style="list-style-type: none"> <li>The contractors will be required to make employment decisions on the</li> </ul>	<ul style="list-style-type: none"> <li>Discrimination policy and related employment policies and procedures</li> </ul>
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Sr. No.	Guiding Principles	Desired Actions	Special Remarks and Suggestions	Monitoring Indicators
	<p>solely based on their ability to do the job</p> <ul style="list-style-type: none"> <li>All workers should have equal access to training, tools, and opportunities for advancement</li> <li>All workers should be free from harassment by management or other workers</li> <li>Positive discrimination may be allowable in cases where it protects disadvantaged or excluded groups and provides them special opportunities</li> </ul>	<p>promotions, and compensation</p> <ul style="list-style-type: none"> <li>Regularly review worker and manager demographics</li> <li>Develop long term remediation plan to address past discrimination</li> <li>Provide regular training to workers and managers</li> <li>Establish confidential and secure communication channels for workers to reach managers</li> <li>Actively promote a harassment-free workplace</li> </ul>	<p>principle of equal opportunity and fair treatment and will not discriminate with respect to aspect of the employment relationship like recruitment and hiring, compensation, working conditions and terms of employment, promotion etc.</p>	<ul style="list-style-type: none"> <li>Company policy and procedure to address and manage discrimination issues when found</li> <li>Comparative demographics of workers and managers</li> <li>Documentation of handled discrimination cases</li> <li>Diversity training curriculum and attendance log</li> <li>Interviews with workers and managers, including those who may be likely to be discriminated against</li> <li>Interviews with local NGOs and trade unions</li> <li>Hiring, promotion and termination records</li> <li>Local laws related to discrimination</li> <li>Hiring of the local residents/ PAFs in the various jobs</li> </ul>
<b>Retrenchment</b>				
6.	<ul style="list-style-type: none"> <li>Project and its contractors will develop and implement a plan to mitigate the adverse impact of retrenchment if it anticipates many layoffs</li> <li>The plan will incorporate non-discrimination principles and include the input of workers, their</li> </ul>	<ul style="list-style-type: none"> <li>Policy and procedure for workforce reduction, including worker selection</li> <li>Analysis of alternatives to workforce reduction</li> <li>Engage workers in discussions with workers related to workforce reduction as early as possible</li> <li>Communication to all workers about why and how the reduction will take place</li> </ul>	<ul style="list-style-type: none"> <li>The contractors may be asked to prepare such a lay off plan especially if the local community is engaged as labourer, as most of the migrant labourer are shifted to other sites for work by the contractor itself.</li> </ul>	<ul style="list-style-type: none"> <li>Policy and procedure related to workforce reduction, severance, and transition</li> <li>Analysis of alternatives employed for workforce reduction.</li> <li>Procedures for selecting workers impacted by workforce reduction</li> <li>Documentation of prior instances of workforce reductions</li> <li>Minutes from management</li> </ul>

Sr. No.	Guiding Principles	Desired Actions	Special Remarks and Suggestions	Monitoring Indicators
	organizations, where appropriate, the government	<ul style="list-style-type: none"> <li>Discussions with local NGOs about how the community impact of workforce reduction could be minimized</li> </ul>		<p>meetings and discussions</p> <ul style="list-style-type: none"> <li>Communications with workers related to workforce reduction</li> <li>Communications with external stakeholders and community groups</li> </ul>

#### Grievance Mechanism

7.	<ul style="list-style-type: none"> <li>Project &amp; its contractors will establish a transparent process for workers to express concerns and file grievances</li> <li>There will be no retaliation or discrimination against those that express grievances</li> <li>Project &amp; its contractors will treat the grievances seriously and take appropriate action</li> <li>Project &amp; its contractors grievance mechanism does not replace other channels as defined by law or collective bargaining agreements</li> </ul>	<ul style="list-style-type: none"> <li>Establish clear policies and procedures for grievances</li> <li>Communicate the grievance process to all workers in a clear, understandable manner</li> <li>Provide on-going training to all workers</li> <li>Document all grievances and the resulting actions</li> <li>Make worker representatives a key part of the process</li> </ul>	<ul style="list-style-type: none"> <li>For a healthy work environment, contractors should create an atmosphere where workers feel safe expressing their concerns and the grievances are settled mostly through informal channel and workers don't feel the need to lodge the complaint. However, there should be a formal grievance redress mechanism which is simple and secure; free from fear of retaliation; responsive and fair and allow workers to file anonymous complaints as well. The grievance mechanism system should not impede the aggrieved to access to court in case he/she is not satisfied with the outcome derived from the formal system.</li> <li>For an effective grievance redress system, the contractors will have to: <ul style="list-style-type: none"> <li>Establish clear policies and procedures for grievances based on</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Documented policy and procedure for worker grievances</li> <li>Worker and manager interviews</li> <li>Training curriculum and log on grievance handling</li> <li>Communications to workers, supervisors, and managers</li> <li>Records of complaints lodged, and actions taken on grievances</li> <li>Employment and termination records</li> </ul>
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Sr. No.	Guiding Principles	Desired Actions	Special Remarks and Suggestions	Monitoring Indicators
			<p>above outlined principles</p> <ul style="list-style-type: none"> <li>○ Communicate the grievance process to all workers in a clear, understandable manner</li> <li>○ Document all grievances and the resulting actions; and</li> <li>○ Make worker representatives a key part of the grievance redressal process.</li> </ul>	
<b>Child Labour</b>				
8.	<ul style="list-style-type: none"> <li>• Project &amp; its contractors will not employ workers under the minimum age for employment as defined by national law (.i.e., below 18 years of age)</li> <li>• Workers between the minimum age and 18 will not be employed in dangerous work or work that interferes with their education or development</li> <li>• The Indian regulation recognizes a person as a child who has not completed his/her 14 years of age.</li> </ul>	<ul style="list-style-type: none"> <li>• Write clearly defined policies and procedures for age verification – make them publicly available</li> <li>• Develop remediation plan for use in cases where children are unknowingly employed</li> <li>• Engage with local stakeholders to develop proactive plans to address child labour issues</li> <li>• Communicate child labour policies to projects suppliers and contractors – and provide them with the training and tools to address the issue</li> </ul>	<ul style="list-style-type: none"> <li>• The migrant contract labourer may be expected to bring their family along during the construction phase of the project. The family might also accompany the labourer to their workplace thus enhances the possibility of child labour at varying scale. Further during the operational phase of the project, the possibility of adolescent workers (between 14 to 18 years) entering hazardous working conditions cannot be ruled out.</li> <li>• The contractors will need to adopt suitable proactive mechanisms to prevent child labour in any form. Some of the measures in this regard could be as follows</li> <li>• Identify the types of activities during the entire project operation that could have a possibility of child labour</li> </ul>	<ul style="list-style-type: none"> <li>• Policies and procedures for age verification in hiring</li> <li>• Interviews with workers, local children, trade unions and NGOs</li> <li>• Visual observation</li> <li>• Pay records, medical records, birth certificates, panchayat certificate</li> </ul>

Sr. No.	Guiding Principles	Desired Actions	Special Remarks and Suggestions	Monitoring Indicators
			<ul style="list-style-type: none"> <li>Clearly defined policies and procedures for age verification</li> <li>Visual observation and verification thereupon</li> <li>Develop remediation plan for use in cases where children are unknowingly employed despite the clear policy and procedure of contractors on no-child labour.</li> </ul>	
<b>Forced Labour</b>				
9.	<ul style="list-style-type: none"> <li>Project &amp; its contractors will not employ forced labour</li> <li>Workers have the right to retain their personal documents and money</li> <li>Workers are free to leave the workplace after work</li> <li>Workers have the right to resign</li> </ul>	<ul style="list-style-type: none"> <li>Clearly define worker's freedom in employment contract</li> <li>Provide employment contracts to all workers in their language - direct or contracted</li> <li>Define and enforce policy regarding use of employment agencies and expectations</li> <li>If employment agencies are used, audit relationship between the agency and the workers</li> <li>Provide training for all workers to explain their rights</li> <li>Pay all job-related training and equipment expenses</li> </ul>	<ul style="list-style-type: none"> <li>Any involuntary work which is performed under threat of force or penalty, is considered as forced labour. It can be in form of bonded labour, indentured labour or similar labour arrangement, slavery, or slavery like situation. There can be a possibility of forced labour by sub-contractors or petty contractors during the construction or operational phase of the project; however, the likelihood of forced labour is expected to be negligible for the regular workers during operational phase in view of hiring system structures in place and an adequate HR management department.</li> </ul>	<ul style="list-style-type: none"> <li>Employment contracts in all appropriate languages</li> <li>Contracts with employment or recruitment agencies</li> <li>Payroll records, timesheets, and wage deduction calculations</li> <li>List of permanent workers and contracted workers at the Project</li> <li>Worker IDs</li> <li>Interviews with all workers, employment agencies and external stakeholders</li> <li>Interviews with security guards</li> </ul>
<b>Occupational Health and Safety</b>				
10.	<ul style="list-style-type: none"> <li>Project &amp; its contractors will take all</li> </ul>	<ul style="list-style-type: none"> <li>Structuring an OHS team and an OHS accountability</li> </ul>	<ul style="list-style-type: none"> <li>Projects and its contractors are</li> </ul>	<ul style="list-style-type: none"> <li>Visual observation</li> </ul>

Sr. No.	Guiding Principles	Desired Actions	Special Remarks and Suggestions	Monitoring Indicators
	<p>reasonable precaution actions to protect the health and safety of workers</p> <ul style="list-style-type: none"> <li>• Ensure that workers are not exposed to unnecessary or unreasonable risks at the workplace, dormitories etc.</li> <li>• Implement an OHS management system consistent with international standards such as OHSAS 18001.</li> <li>• Systematically assess all OHS risks, conducting a comprehensive job safety or job hazard analyses.</li> <li>• implement preventive and protective measures according to the order of priority: Eliminating the hazard, Controlling the hazard at its source, Minimizing the hazard, Providing appropriate personal</li> </ul>	<p>framework (including production area)</p> <ul style="list-style-type: none"> <li>• Conducting a comprehensive job safety or job hazard analyses</li> <li>• Developing a Corrective OHS Action Plan based on the likelihood and severity of the consequence of exposure to the identified hazards</li> <li>• Proper equipment design, maintenance, and procedures, such as: Designing machines and equipment's like stairs, to eliminate trap hazards</li> <li>• Turning off, disconnecting, isolating, and de-energizing (Locked Out and Tagged Out) machinery with exposed or guarded moving parts or being serviced</li> <li>• Marking and checking all energized electrical devices, cords, and lines with warning signs</li> <li>• Implementing proper monitoring systems of hazardous agents and proper control measures (eliminating risk, PPC, PPE)</li> </ul>	<p>expected to have its own OHS system.</p> <p><i>Some examples of things to be done include:</i></p> <ul style="list-style-type: none"> <li>• Integrity of Workplace Structures – reachable, easy to clean, fore resistant, floors</li> <li>• Workspace and exits – unobstructed, clearly marked, consider disabilities</li> <li>• Fire Precautions</li> <li>• Amenities- toilets, potable water, lighting</li> <li>• Safe Access –even pathways, falling objects, railings</li> <li>• First Aid- training</li> <li>• Fresh air supply</li> <li>• Physical Hazards- Working at heights, Vibrations, Electrical, Ergonomics, illumination</li> <li>• PPEs</li> <li>• Communication<sup>19</sup>- Induction orientation, training</li> </ul>	<ul style="list-style-type: none"> <li>• Exposure to hazardous agents monitoring log</li> <li>• Manager and worker interviews</li> <li>• Accident and medical treatment logs</li> <li>• Equipment maintenance logs</li> <li>• Fire and safety drill logs</li> <li>• Health and safety risk analysis</li> <li>• Health and safety inspection logs with test results</li> <li>• Government health inspection reports</li> <li>• Training curriculum and logs</li> </ul>

Sr. No.	Guiding Principles	Desired Actions	Special Remarks and Suggestions	Monitoring Indicators
		<ul style="list-style-type: none"> <li>protective equipment</li> <li>Document, investigate and report all accidents and occupational diseases.</li> <li>Investigate and identify the root causes of all accidents with working time loss, and implement appropriate corrective actions</li> <li>Note: This can be done through the involved contractors also.</li> </ul>		

## 15.8 Roles and Responsibilities

Responsible Parties	Roles and Responsibilities
HR In charge	Responsible for the enforcement and implementation of procedures and protocols relating to labour and working conditions.
EHS Manager	At the corporate level would ensure identification of project level EHS Officer and responsible for signing off various policies and procedures developed for the management of the workforce and their health and safety.
Project Specific EHS Officer	The EHS Officer at the project level shall be responsible for implementation of the procedure. Responsible for the implementation and management of all measures in relation to OHS and working conditions. Representatives of the EPC and Sub-Contractors
Site Manager	The Site manager shall be responsible for ensuring availability of resources as required by Project EHS Officer for implementation of these procedures.

## 15.9 Records

The project specific HR personnel must maintain records of all trainings provided along with details on frequency, attendees, trainer, and location. Additionally, a record should be maintained of any behavioural complaint, use of

PPE, Identification Cards issued to labour, conditions of employment and maintenance of labour accommodation. Additionally, records of legal compliances should be maintained on a regular basis. A grievance register enlisting the date and nature of complaints along with their solution and its implementation should be maintained. These records and registers are to be shared with the corporate office of HFE monthly. Compiled quarterly report of records are to be shared as well.

The records should be regularly updated; on a weekly, monthly, quarterly, and yearly basis. In case a contractor is designated on any project, it is the contractor's responsibility to maintain site specific records. These records are to be regularly updated and shared with HFE.

Contractors shall maintain records for verification of compliance to Indian labour laws, which should, at the minimum include:

- Attendance Register
- Leave Register
- Overtime Register
- Wage Register
- Register for advance amounts.
- Proof of age and competence of all workers
- Register of the accidents and report of half yearly accidents

All registers and records are to be maintained as specified under IFC Performance Standards and National as well as State Specific laws.



## 16 APPENDIX P: Security Personal Management

### 16.1 Purpose

The purpose of security personnel management is to promote a secure workplace through the implementation of security measures, minimize unauthorized access to the project site and safeguard the project's workers, assets, and components from potential security risks. Construction sites are exposed and often located in rural locations, due to which they are susceptible to security breaches. Even in the case of semi-urban or urban areas, the risk remains the same as more skilled criminals might get involved in the breaching. Also, construction sites are luring to raids and trespassers given the continual presence of massive and expensive equipment's, and other valuable materials.

HFE assets and reputation from theft, damage, and other security lapses can be protected by proper management of security personal. Any security breach could result in high expenses, construction project delays, and possible legal ramifications. When compared to the potential costs one could incur in the event of a security breach, the expense of putting in place suitable security measures is negligible.

### 16.2 Objectives

The main objectives of security personal management are:

- Protecting the construction site, workers, etc from security breaches which might be life threatening sometimes
- To keep out illegal trespassers from entering site location
- To avoid outsiders with no ill will, like children who might not be aware of the casualties that can occur inside the site
- To protect workers from outside threat of any means like community protest etc
- Security personal should also act as point of contact person for the local community

### 16.3 Scope

The provisions of this Plan are mandatory for all Sites/ Projects of HFE (during both construction and operation phase). All visitors to the Project site must abide by the requirements of this Plan.

### 16.4 Management measures

HFE shall ensure the measures discussed in subsequent sections are diligently followed during the Project lifecycle at all its Projects. Before one can fully plan, and protect, their project site from trespassers or any miscreants, it is very important to understand the scope of security risk the site can face. Understanding the degree of risks will help develop methods to strengthen security and reduce loses.

#### 16.4.1 Security Risks of the Project

HFE shall engage third party security service providing agency and deploy adequate security personnel based on their assessment of potential security risks which can be (but not limited to) the following:

- Robbery of equipment, tools, and other valuable materials
- Vandalism
- Labour Dispute
- Community Protest
- Armed Protest
- Trespassing /Petty Theft

- Arson
- Roadblock, etc.

#### 16.4.2 Selection Criteria of Security Agency

Selection criteria of security agency will include but not limited to:

- Agency should be in possession of necessary license from government authorities.
- Agency should have a reputed client list.
- Track records/ reputation of the agency.
- Security guards should have their backgrounds verified from the local police station, at the instance of the contractor and a copy of such verification reports should be submitted before commencement of the contract.
- Basic safety and behavioural training to the security guards should be conducted before hiring of the same.
- Timely payment of wages and compliance to minimum wages, P.F., gratuity, insurance, medical and other dues of the security guards as other applicable labour laws.

#### 16.4.3 Security Arrangement

- HFE shall perform proper due diligence of the shortlisted security agency. The due diligence shall cover (but not limited to) screening for reputational risk, hiring procedures, any record of criminal behaviour or human right allegations against its staff.
- HFE shall ensure that background verification of the security deployed at site has been made by the security agency and all details of the background verification of security personnel shall be documented.
- HFE shall prefer deployment of security personnel having an understanding and familiarity of the local area, language/dialect, and nearby communities, for efficient working.
- All the security personnel to be deployed at project site shall have to submit health and fitness test certificate with HFE management.
- A contact list of all on-roll staff and contractual workers engaged during construction phase will be maintained with the HFE team.

#### **Tasks of Security personnel will include**

- Verify each person's (employees, contractors, visitors, suppliers, transporters etc.) identification card and site access permit before allowing them to enter the site and collect the site access permit before they leave the site.
- Remain vigilant during night-time operations at project site, for potential entry of miscreants, unauthorized entry of personnel.
- Thoroughly check all employees, contractor workers, visitors before allowing them to enter the site, to ensure that they are not carrying any objectionable items. And check before leaving to ensure they're not carrying back any valuables from the site.
- Ensure that all vehicles carrying equipment coming to site has necessary permits and licenses.
- Maintain a record of all incoming and outgoing vehicle and personnel in a register.
- Control the vehicle movement into the site premises, help in parking vehicles to their respective places/parking area.
- Manning and guarding material projects on site, should get familiarized with storage area layout, types of different raw materials stored etc.
- Locking of tools, valuable materials, and equipment whenever possible, also have a separate mobile phone storage area and encourage storage of phones in the designated area during construction phase and post commissioning of project

- No mater project equipment and materials are major financial assets, but safety of the workers is also important as they might be a target of robbery outside the jobsite. Hence, workers should be encouraged to walk in groups when their shift ends.
- Appropriate sign boards to be displayed at key entry areas to ensure that no person under the influence of alcohol or drugs enters the site premise

#### 16.4.4 Armed Security

- If HFE require to hire armed security personnel based on their assessment of potential security risks in the region, it shall ensure that the security agency has all the relevant documents required to carry a firearm.
- HFE must make reasonable inquiries to ensure that those providing security doesn't have any past records of crime/abuse. HFE also requires providing adequate training to the security personnel in use of force (firearms) when required, and act within the applicable law. HFE will not sanction any use of force except when used for preventive and defensive purposes in proportion to the nature and extent of the threat.
- Any use of firearm by security personnel shall be authorized by the site designated person and will only be used for following risk scenarios:
  - Armed protest.
  - Riots.
  - Hostage Situation.
  - Personal or communal attacks causing fatalities.
  - Fire in the air
  - Use of firearms as a last resort (in non-fatal way) on human beings with permission from designated site authority.
- HFE shall provide a dedicated storage area of security firearms which can only be accessed by designated security guards in the times of emergency.
- HFE shall maintain a record of firearms, ammunition and the person who has been issued the weapons.
- If a scenario occurs when major security threat has led to use of firearms on site, HFE shall immediately inform the local police station.

#### 16.4.5 Virtual security

HFE should also install Closed Circuit Television (CCTV) in critical location on the site where access might be difficult. HFE should consider cameras with night vision as security breach is more prevalent during night-time. Installation of security camera will help investigate crime scene when occurs and motivate workers to work efficiently and restrain ill thoughts of stealing.

An intrusion alarm system should also be installed which can monitor and detect unauthorized access to the project site. The main purpose of an intrusion alarm system is to protect from burglary, vandalism, property damage, and the security of the individuals inside the building.

### 16.5 Training & Competence

HFE shall engage the deputed security personnel in training programs through its in-house team or through the security agency. Following shall be covered in training:

- Gate Management
- Emergency Preparedness and Response Plan
- Fire safety & rescue plan + trainings
- Grievance Redressal Mechanism
- Appropriate use of Force
- Human Rights Principles
- First Aid

- POSH Training
- Toolbox talks
- Meeting practices
- Safety walks and inspections
- EHS audit practice
- Reporting and investigation (FRIDA, For Help)
- Safety communication
- Audit system
- Behavioural Aspects
- Mock Security Drills
- Procedure for dealing with threats of violence and the corresponding restraint to be displayed
- Protocols for reporting incidences to the local police station and seeking government assistance
- Usage of firearms
- Reporting Near Miss incidents

Apart from the above components that are covered as part of the training, verbal instructions on the following security-related aspects shall be imparted by the HFE to the security guards deployed at the HFE Project Site on regular basis:

- Duties and responsibility on site.
- Discipline and etiquettes.
- Conduct in public.

#### 16.5.1 Allegations of Misconduct

- If any allegation of unlawful or harassment/abusive acts is charged against any of the security personal, HFE shall duly investigate all allegations and take necessary action fairly.
- Any complaint regarding security shall be channelled to the site security officer and any other personnel responsible for community relations.

### 16.6 Documentation and Reporting

HFE shall maintain a database of the various security-related incidents occurring and the security-related grievances raised by external and internal stakeholders, including:

- Training records.
- Details of security guards.
- Details of security related grievances.

## 17 APPENDIX Q: Stakeholder Engagement Framework

### 17.1 Purpose

Stakeholder Engagement is defined as “the basis for building a strong constructive and responsive relationship that is essential for the successful management of HFE’s entities’ environmental and social impacts. The framework has been prepared to guide stakeholder engagement across the lifecycle of a project, demonstrating Company’s commitment towards its stakeholders while also addressing the requirements of the International Finance Corporation (IFC) Performance Standards (PSs). Stakeholder engagement is an ongoing process that may involve, in varying degrees, the following elements: stakeholder analysis and planning, disclosure and dissemination of information, consultation and participation, Grievance Management, and ongoing reporting to stakeholders. Stakeholder Engagement is thus an umbrella term which encompasses a range of activities or interactions between a company and its internal and external stakeholders.

A stakeholder is a party that has an interest in a company and can either affect or be affected by the business. The stakeholder can be identified as internal and external stakeholders. This document puts a plan that shall guide the stakeholder identification, analysis, and engagement process for HFE.

This engagement plan is focused on the engagement during the construction and operation phases of the project. It is expected that the plan will be a “live” document and will continue to evolve and be updated continuously as the project progresses.

### 17.2 Project Phases and Activities

The project life cycle (PLC) can be divided into four phases and ensuring the completion of all the tasks in each phase, within the planned Turn-around Time (TAT), is the major responsibility of the corporate management. The four (4) phases of the PLC are as follows:

- Planning and preconstruction phase
- Construction phase
- Operation (including maintenance and repair) phase; and
- Decommissioning

### 17.3 Objective

This engagement plan will guide all the stakeholder engagement during construction phase and operation phase; however, with the change in Industry practices and regulatory requirements, the plan will be reviewed and revised accordingly.

The objectives of this SEF are to:

- Enable management to develop effective stakeholders’ management strategies for the various projects to build longer term relationships to ensure smooth functioning of the projects.
- To define and standardize the processes that projects will use to communicate with respective stakeholders.
- To ensure regular and timely sharing of information with project teams to spruce up their understanding and skills of engaging with the stakeholders.
- Ensuring coordination in approach and message to be shared with the community regarding the company and the projects.

HFE will develop projects specific fit to purpose Stakeholder Engagement Plan (SEP) based on this framework that can be consistently implemented across project life cycle by its staff and contractors. Stakeholder engagement and consultation would involve dialogue between HFE and its stakeholders to sustain constructive relationship over

time. For its Project, this will not be a single conversation but a series of opportunities to create understanding about the project among those it will likely affect or interest, and to learn how these stakeholders view the project and its risks, impacts, opportunities, and mitigation measures.

Stakeholder identification, mapping and analysis will be undertaken during initial stage of the project, and much stress must be put in rationalizing the organisational structure for implementation of the stakeholder engagement and communication plan, depending upon the self-development model or turnkey development model to be followed for any project of HFE.

#### 17.4 Scope

The provision of the framework should be implemented to all the projects falling under the ownership of HFE (directly or by entity owned by HFE) and shall be implemented during the entire project life cycle.

#### 17.5 Applicable reference Framework

The disclosure of project information and consultations with stakeholders has been increasingly emphasized by project finance institutions and government regulatory bodies. A brief overview of the requirements of public disclosure and stakeholder consultation applicable to this project is provided below.

**Table 17-1 Overview of Disclosure and Stakeholder Consultation Requirements**

Performance Standard	Requirements
IFC Performance Standard 1 - Social and Environmental Assessment and Management System	<ul style="list-style-type: none"> <li>• In keeping with this PS, community engagement is to be undertaken with the affected communities and must be free of external manipulation, interference, or coercion, and intimidation.</li> <li>• Furthermore, in situations where an affected community may be subject to risks or adverse impacts from a project, the proponent must undertake a process of consultation to provide the affected communities with an opportunity to express their views on the project risks, impacts, and mitigation measures, as well as allow the proponents to consider and respond to them.</li> <li>• Informed participation: For projects with significant adverse impacts on affected communities, the consultation process must ensure that free, prior, and informed consultation with affected communities occurs and that processes exist to facilitate participation by those affected.</li> <li>• Apart from such a consultation process, the project proponents are also to establish a Grievance Redressal Mechanism, which will allow the affected communities' concerns and grievances about the project proponent's environmental and social performance to be received and allow for steps to be taken to resolve the same</li> <li>• Broader stakeholder engagement: The proponent must identify and engage with stakeholders that are not directly affected by the Project but those that have established relationships with local communities and/or interest in the Project – local government, civil society organizations, etc. – and establish a dialogue.</li> </ul>

## 17.6 Stakeholder Identification and Analysis

### 17.6.1 Stakeholder Identification, mapping, and analysis

“Stakeholder mapping” is a process of examining the relative influence that different individuals and groups have over a project as well as the influence of the project over them. Effective stakeholder mapping is done by identifying the people/groups that have stakes/ interests in the Project either directly or indirectly and the way both can mutually benefit from each other. This stakeholder engagement will enable HFE to assess the socio-political environment in which they are to operate and to:

- Train HFE site officials to identify conflict of interests between stakeholders to help manage such relationships during the project.
- Help project officials to identify relations between stakeholders that may enable "coalitions" of project sponsorship, ownership, and co-operation.
- Generate information critical to planning, implementation, and monitoring of the project; and
- Develop the framework of participatory planning and implementation.

Those stakeholders who have a direct impact on or are directly impacted by the project are known as Primary Stakeholders, those who have an indirect impact or are indirectly impacted are known as Secondary Stakeholders. Keeping in mind the nature of the project and its setting, a broad list of stakeholders has been identified and listed in the table given below.

### 17.6.2 Stakeholder Group Categorization

A stakeholder is “a person, group, or organization that has a direct or indirect stake in a project/organization because it can affect or be affected by the Project/organization's actions, objectives, and policies”. Stakeholders thus vary in terms of degree of interest, influence and control they have over the project. While those stakeholders who have a direct impact on or are directly impacted by the project are known as Primary Stakeholders, those who have an indirect impact or are indirectly impacted are known as Secondary Stakeholders. Keeping in mind the nature of the project and its setting, a broad list of stakeholders have been identified and listed in the table given in table below.

Stakeholder Groups	Primary Stakeholders	Secondary Stakeholders
Community	<ul style="list-style-type: none"> <li>• Land lessors/seller</li> <li>• Contractors and suppliers</li> <li>• Local Labours</li> <li>• Migrant Labours</li> <li>• Informal land users</li> <li>• Formal Land users</li> <li>• Indigenous People</li> </ul>	<ul style="list-style-type: none"> <li>• Local community</li> <li>• Agricultural Labourers</li> <li>• Vulnerable Community</li> <li>• Local businesses</li> </ul>
Institutional Stakeholders	<ul style="list-style-type: none"> <li>• Gram Panchayats</li> <li>• Project investors</li> <li>• Customers</li> </ul>	<ul style="list-style-type: none"> <li>• Village Institutions (schools, health centres)</li> <li>• Emergency services</li> </ul>
Government Bodies	<ul style="list-style-type: none"> <li>• Regulatory Authorities; District Administration</li> </ul>	
Other Groups		<ul style="list-style-type: none"> <li>• Media</li> <li>• Other industries/projects</li> <li>• Non-governmental organizations</li> </ul>

**Note:** The above provided list is indicative in nature. However, the final identification of stakeholder of a project will be done during the Environmental and Social Impact Assessment or standalone stakeholder identification and engagement exercise.

### 17.6.3 Stakeholder Analysis

The table below provides the profile of the key stakeholders who might have certain direct or indirect impact. These stakeholders will need to be classified in accordance with the level of influence they might have over the project as well as their priority to the project proponent in terms of importance. The influence and priority have both been primarily rated as:

- **High Influence:** This implies a high degree of influence of the stakeholder on the project in terms of participation and decision making or high priority to engage with the stakeholder.
- **Medium Influence:** Which implies a moderate level of influence and participation of the stakeholder in the project as well as a priority level to engage the stakeholder which is neither highly critical nor are insignificant in terms of influence.
- **Low Influence:** This implies a low degree of influence of the stakeholder on the project in terms of participation and decision making or low priority to engage that stakeholder.

The intermediary categories of low to medium or medium to high primarily imply that their influence and important could vary in that range subject to context specific conditions or also based on the responses of the project towards the community.

The coverage of stakeholders as stated above includes any person, group, institution, or organization that is likely to be impacted (directly or indirectly) or may have interest/influence over project. Keeping this wide scope of inclusion in stakeholder category and the long life of project, it is difficult to identify all potential stakeholders and gauge their level of influence over project at the outset of the project. Therefore, HFE is advised to consider this stakeholder mapping as a live document which should be revised regularly to make it comprehensive list of stakeholder for all of its project. Therefore, provided below the template to identify the stakeholders, impact of stakeholder on project and vice versa, expectations, opinions and keys concerns of stakeholders, and rating of influence of stakeholder.

#### **Stakeholder Analysis**

The influence and priority have both been primarily rated as:

- **High Influence:** This implies a high degree of influence of the stakeholder on the project in terms of participation and decision making or high priority to engage with the stakeholder
- **Medium Influence:** Which implies a moderate level of influence and participation of the stakeholder in the project as well as a priority level to engage the stakeholder which is neither highly critical nor are insignificant in terms of influence
- **Low Influence:** This implies a low degree of influence of the stakeholder on the project in terms of participation and decision making or low priority to engage that stakeholder

The intermediary categories of low to medium or medium to high primarily imply that their influence and importance could vary in that particular range subject to context specific conditions or also based on the responses of the project towards the community.

The coverage of stakeholders as stated above includes any person, group, institution or organization that is likely to be impacted (directly or indirectly) or may have interest/influence over project. Keeping this wide scope of inclusion in stakeholder category and the long life of project, it is difficult to identify all potential stakeholders and gauge their level of influence over project at the outset of the project. Therefore, the project proponent is advised



to consider this stakeholder mapping as a live document which should be revised in a timely manner so as to make it comprehensive for any given period of time.

The following table provides the template for stakeholder groups identified, their key interests and concerns and the way they may be involved in the project lifecycle

Relevant Stakeholders Profile/Status	Impact/Influence of the Project on this Stakeholder Group	Impact/Influence of the Stakeholder Group on the Project	Expectations, Opinions Key Concerns of Stakeholders	Rating of Stakeholder Influence (High/Medium/Low)
Land Lessors/seller				
Developers and EPC Contractor				
Supplier				
Local Labourers				
Migrant Workforce				
Informal Land users				
Formal Land users				
Indigenous people				
Local Community				
Agricultural labourers				
Vulnerable Community				
Local Businesses				
Gram Panchayats				
Project investors				
Customers				
Village Institutions (schools, health, and centres)				
Emergency Services				
Regulatory Authorities				
District/Tehsil Administration				
Civil Society/Local NGOs				
Media				
Other industries/projects				

#### 17.6.4 Stakeholder Engagement and Communication Strategy

Stakeholder engagement and communication strategy will take into cognizance the various stakeholder engagement and CSR activities already being undertaken by the company or partner NGO, or developer under turnkey model and existing communication routes being followed. Presence of CSR agencies needs to be considered, as they are an extension of the project and the staff therein is considered, to an extent, representative for the project. The land acquisition team and construction team mobilized at the site, serves as another extension. Coordinated flow and collation of information, concerns, and grievances, therefore becomes important.

#### 17.6.5 Stakeholder Engagement Principle

This framework provides details on the general principles for HFE's stakeholder engagement which shall be used for implementing, monitoring, and evaluating stakeholder engagement activities. In line with current international best practices, the SEP basically aims to:

- Describe the general requirements for engagement and disclosure.
- Identify the stakeholders being directly or indirectly affected or having any sort of interest in the project.
- Identify any specific requirements, expectations, and preferences of key stakeholders (affected parties, authorities, NGOs)
- Provide a strategy for sharing of information and consulting with each of these stakeholder groups during various phases.
- Document HFE's resources and responsibilities for implementing activities and provide contact information at all levels and on all subjects.
- Maintain detailed reporting/documentation of engagement and disclosure activities; and
- Agree on monitoring and evaluation processes

By assessing the present status of stakeholder engagement, challenges in the process and the phase of project cycle, the way forward must consider and address all the remnants of the previous stages and aspects that will add onto the current stage of development. To ensure the smooth functioning of the project a long-term engagement strategy has been formulated.

#### 17.6.6 Overall Stakeholder Engagement Plan Strategy

The overall stakeholder strategy will be cognizant of the requirement of the various stakeholders and the level at which communication is presently being undertaken by the project. This will be largely applicable post land acquisition and during construction activities.

#### 17.6.7 Community around project (land lessors/sellers, local contractors, local laborers, local community, agricultural labours, indigenous people, vulnerable community)

The designated project liaison officer of each site will be solely responsible for interaction with the community members residing near each project, through village meetings and other platforms. The minutes of the meetings will be shared with the respective site in-charge as well as the corporate liaising team in standard reporting formats in pre- decided time intervals.

#### 17.6.8 Institutional Stakeholders (Gram Panchayat, Project Investors, Village Institutions)

HFE's corporate team and project-based team will be in direct contact with the institutional stakeholders through direct meeting and other platforms. The minutes of the meetings will be shared with the respective site in-charge as well as the corporate liaising team in standard reporting formats in pre-decided time intervals. The influence HFE's project on the stakeholders pertains to the role of the project in the development of these institutions.

### 17.6.9 Government Bodies (Regulatory Authorities and District Administration)

The regulatory authorities will be coordinated directly by HFE's legal team/ project-based team. These consultations are in relation to the power purchase agreement, power evacuation arrangements; intimation to concern state pollution control boards / pollution control committees, revenue land allotment, or other requirements required for the renewable energy projects. The copy of the permits and communication will be made available to HFE at various levels. HFE's team at the corporate level will be responsible for driving the timely fulfilment of the project level regulatory compliances. After completion, a copy of the relevant permits and compliances will be provided to the corporate team from all the projects, for records.

The minutes of the meetings will be shared with the respective site in-charge as well as the corporate liaising team in standard reporting formats in pre- decided time intervals.

The corporate representatives of HFE will drive the liaison either through direct meetings or through state team authorities that include the Ministry of New and Renewable Energy, state Revenue Departments, state Renewable Energy Corporation, State Pollution Control Boards, and other necessary agencies, as and when required.

### 17.6.10 Other Groups (NGOs, Civil Society, Political Leaders, and Media)

HFE's project liaison officer or project head or land team or other designated person will be accountable for any communication with NGOs, civil society members, political leaders and media. The details of any such communication concerning the projects will be made available to the HFE's corporate team in the form of stakeholder engagement records. Nobody apart from HFE's designated corporate liaising in-charge will be responsible for communication with the above-mentioned stakeholder.

## 17.7 Organizational Structure and Roles and Responsibilities

During the construction stage, owing to the interplay of the various actors involved, it is important to have a system in place which ensures that the community as one of the key stakeholders is aware about the Stakeholder engagement as well as the communication protocol including the grievance mechanism. Due to the interplay of various factors, the organizational structure for CSR and stakeholder engagement has been shown in context to the complete organizational structure.

Section below suggests the mechanism in place for establishing clear protocol of communication between the corporate team and the various stakeholders including the community. It is also suggested above that all these communication platforms must consolidate the stakeholder engagement records and submit it to the corporate team of HFE.

### 17.7.1 Financial Resourcing

The corporate team of HFE will ensure that the budgetary allocations for stakeholder engagement are adequate to meet its objectives as laid out in the stakeholder engagement policy. Once the construction phase of a project is over, the stakeholder engagement will continue to be budgeted for the complete lifecycle of each project. Corporate team will ensure that budgeting related to stakeholder engagement are not compromised and financial resources for conducting the stakeholder consultations are made available to the dedicated team at the project site level.

### 17.7.2 Engagement Methods

The methods of communication can be either verbal or written, on the basis of the purpose of communication and the target stakeholder group. Some of the key methods of communication are as follows:

- **Information disclosure:** Information about the project will be effectively communicated to the affected communities and stakeholders through various accessible methods, such as Panchayat hall meetings, local print media, radio broadcasts, and public gatherings. Special efforts will be made to ensure that illiterate individuals can also understand the information. The Resettlement Action Plan, including updates and documentation of consultation processes and monitoring reports, will be openly shared with the public. Additionally, if the project involves commercial development of Indigenous Peoples’ cultural resources and knowledge, communities will be informed of their rights under both statutory and customary law. They will also receive detailed information about the proposed development, including parties involved, and the potential impacts on Indigenous Peoples’ livelihoods, environment, and resource utilization.
- **Stakeholder engagement:** HFE is committed to ensuring comprehensive disclosure and explanation of all project information to the communities involved. Ample time will be provided for them to thoroughly consider the issues at hand. The consultation process will embrace inclusivity, engaging various segments of the affected community, including women and men, and ensuring accessibility for disadvantaged and vulnerable groups within the community.
- **Negotiation and Partnerships:** Negotiations with stakeholders, whenever necessary, will be approached in good faith. This means conducting discussions with an open mind, a willingness to actively participate, and a sincere intent to find mutually acceptable solutions and reach agreements. Transparency will be maintained throughout the negotiation process, taking into account the time constraints of all parties involved. Negotiation procedures and language will be clear and agreed upon by all parties. Additionally, exploring opportunities for partnership in community development initiatives such as schools, hospitals, and roads will be integrated into the negotiation process.

The details of the relevant stakeholders, stage at which the engagement needs to be undertaken, purpose of consultation, mode of engagement, responsible person for stakeholder engagement, person to whom reporting is to be done, and the system of maintaining records of stakeholder engagement is mentioned in table below.

Relevant Stakeholders	Stage at which the consultation	Purpose of the Consultation	Mode of engagement	Responsible person	Reporting Format
Land lessors/sellers, formal land users, informal land users, and Indigenous People (if any)	Mobilization Construction Stage Operation stage	Engagement by project land team to procure the land and redressal of grievance if any raised, and safeguards the project for any further agitation by the stakeholder group	<ul style="list-style-type: none"> <li>• Meetings</li> </ul>	Project land team and project head	Report on grievance raised by the stakeholder group and/or on various aspects
Developers and EPC Contractors	Mobilization Construction Stage Operation stage	Engagement by Project team will be at various stages of the project	<ul style="list-style-type: none"> <li>• Meetings</li> <li>• Submission of reports</li> </ul>	The project liaison officer	Reports on various aspects
Regulatory Authorities	Mobilization Construction	Various permissions and licenses related to setting up of the	<ul style="list-style-type: none"> <li>• Meeting</li> <li>• Submission of</li> </ul>	HFE’s legal team/ project-based team	Evidence as well as details of communication

Relevant Stakeholders	Stage at which the consultation	Purpose of the Consultation	Mode of engagement	Responsible person	Reporting Format
	Stage Operation stage	project. <ul style="list-style-type: none"> <li>Land procurement on sale / lease.</li> <li>Submission of compliance related returns.</li> </ul>	compliance documents <ul style="list-style-type: none"> <li>Official letters</li> </ul>		
District/Tehsil Administration	Mobilization Construction Stage Operation stage	<ul style="list-style-type: none"> <li>Some of the regulatory permission in relation to land.</li> <li>Development intervention for the district.</li> <li>Other issues seeking participation of the project by the District Administration.</li> </ul>	<ul style="list-style-type: none"> <li>Meeting</li> <li>Submission of compliance documents</li> <li>Official letters</li> </ul>	HFE's legal team/ project-based team	<ul style="list-style-type: none"> <li>Evidence as well as details of communication</li> <li>Verbal communication and relevant records as applicable</li> </ul>
Gram Panchayats	Mobilization Construction Stage Operation stage	<ul style="list-style-type: none"> <li>NOC from the local Panchayat</li> <li>Information on the project</li> </ul>	Meetings	HFE's project-based team	Records of communication at site level
Local Community	Mobilization Construction Stage	<ul style="list-style-type: none"> <li>Information sharing on the project.</li> <li>Details on the activities to the project.</li> <li>CSR and other benefits to the local population as guided by CSR policy and committee</li> </ul>	Meetings	The project liaison officer	Records of communication at site level
	Construction Stage	<ul style="list-style-type: none"> <li>Information on movement of vehicles and equipment.</li> <li>Regular</li> </ul>	Meetings		Records of communication at site level

Relevant Stakeholders	Stage at which the consultation	Purpose of the Consultation	Mode of engagement	Responsible person	Reporting Format
		update meetings on monthly or bimonthly basis			
	Operation stage	Benefits from the project	Meetings		Records of communication at site level
Vulnerable Community	Mobilization Construction Stage Operation stage	Benefits from the project	Meetings	The project liaison officer	Meeting records maintained at the village level as well as submitted to site in charge.
Civil Society/Local NGOs/ media	Mobilization Construction Stage Operation stage	<ul style="list-style-type: none"> <li>Information sharing on the project.</li> <li>Discussion on specific issues of concern</li> </ul>	<ul style="list-style-type: none"> <li>Meetings</li> </ul>	The project liaison officer	Records of communication at site level
Sub-contractor/ Local Labourers/ Migrant Workforce	Construction Stage	<ul style="list-style-type: none"> <li>Working conditions and terms of employment.</li> <li>Any other issue including conflict of the migrant population with the locals</li> </ul>		The project liaison officer	Meeting and grievance records submitted to the site in-charge

## 17.8 Stakeholder Engagement Form

A **Stakeholder Engagement Form** will be used to gather input, feedback, and expectations from stakeholders during the planning, execution, or evaluation of a project. It helps ensure that all relevant parties are involved, and their concerns are addressed. A template for Stakeholder Engagement form has been provided below:

Stakeholder Engagement Form		
Project Title:		
Project Manager:		
Date:		

Key Components	Information Obtained	Remarks (if any)
<b>Stakeholder Information</b>		
Stakeholder Name		
Role/Position		
Organization/Department		
Contact Information (Email/Phone)		
<b>Stakeholder Group</b>		
Internal (e.g., Employees, Managers)		
External (e.g., Clients, Suppliers, Regulators)		
<b>Stakeholder Interest and Involvement</b>		
What is your level of interest in this project?  High Medium Low		
How would you describe your level of influence on the project?  High Medium Low		
How do you plan to be involved in this project?		

Key Components	Information Obtained	Remarks (if any)
<b>Advisory Role</b> <b>Decision-Making Role</b> <b>Information Sharing</b> <b>Monitoring and Evaluation</b> <b>Other:</b>		
<b>What are your key concerns or expectations regarding this project?</b>		
<b>What specific outcomes or benefits do you expect from this project?</b>		
<b>Communication Preferences</b>		
<b>How would you prefer to be informed about project progress?</b>  <b>Email Updates</b> <b>Meetings</b> <b>Reports</b>		



Key Components	Information Obtained	Remarks (if any)
Phone Calls Project Website/Portal Other:		
How often would you like to receive updates?  Weekly Bi-weekly Monthly Quarterly As Needed		
Would you like to participate in formal review meetings?  Yes No As Needed		
Who else should be involved in communications about this project?		
<b>Risks and Opportunities</b>		
What risks do you foresee that could impact the success of the project?		

Key Components	Information Obtained	Remarks (if any)
<p><b>What opportunities do you see for enhancing the project's success?</b></p>		
<p><b>How can we best collaborate to mitigate risks and seize opportunities?</b></p>		
<p><b>Additional Comments or Suggestions</b></p>		
<p><b>Do you have any additional feedback or suggestions on how we can improve stakeholder engagement throughout the project?</b></p>		

Key Components	Information Obtained	Remarks (if any)
<b>Stakeholder Agreement and Commitment</b>		
<p>Do you agree with the engagement approach and timeline for this project?</p> <p>Yes No</p> <p>Needs Modification (Please specify):</p>		
<p>Are you committed to supporting this project through your identified role?</p> <p>Yes No</p> <p>Unsure (Please explain):</p>		
<b>Signature:</b>		
<b>Date:</b>		

## 17.9 Reporting and Monitoring

### 17.9.1 Monitoring and Evaluation

HFE shall monitor the principles and commitments of the stakeholder engagement process and will need to report on the status of implementation of different aspects, such as information disclosure, grievance redressal, etc.

Engagement levels can be monitored by developing a set of indicators which will include:

- Number and Type of Communications and Issues discussed.
- Frequency of communications.
- Type, subject, and number of grievances.
- Sources of complaints.
- Average time taken to resolve and close grievances.
- Number of presentations and frequency on EHS and economic status of the company.
- Number and diversity of stakeholders involved per action.
- Comments on any disclosed documents/presentations.
- Level/degree of involvement for stakeholders.
- Partnerships with stakeholders; and
- Number of mass media articles/announcements

### 17.9.2 Monitoring & Evaluation of Communication Process

To ensure the smooth functioning of the communication plan and fulfilment of the objectives identified, it is imperative to undertake regular monitoring, reviewing, and reporting. The importance of the review process lies in the fact that it allows for the corrections of any oversight which may have been made during the initial stages of a project through mid-course corrections. This also serves as an important quality assurance mechanism.

The monitoring and review process becomes more important when it is kept in mind that the Communication Plan is a 'live document; or in other words a document which needs to be revised in a timely manner to make it comprehensive for any given period. In keeping with this, the project will undertake regular monitoring of the implementation of the communication plan, based on which the plan will be updated as and when felt necessary.

This monitoring will thus be aimed at:

- Auditing the implementation of the Communication Plan.
- Monitoring the formal and informal communication activities conducted with the stakeholder groups.
- Monitoring the effectiveness of the communication processes in managing impacts and expectations, while dispersing information by:
- Tracking feedback received from communication activities
- Recording and tracking commitments made to communities; and
- Assessing the efficacy of the communication activities in terms of the desired outcomes and the participation of the stakeholder groups.

For monitoring and reporting the following checklist will be followed.

Stakeholder group	Location	Date of communication	Purpose of communication	Means of communication	Stakeholder Response	Further Action	Reference Document

All communication with the stakeholders will be properly recorded in the form of minutes and maintained as reference documents (as seen in the table above) across the lifecycle of the project. Such a database would allow for the effective monitoring of the communication process.

Based on the monitoring and documentation process, the performance will be reviewed on an annual basis. To review, the quarterly reports will be prepared and reviewed. Since these reports, a Stakeholder Engagement and Communication Report will be prepared and disclosed annually, including a summary of issues raised by stakeholders, numbers and subjects of grievances, a summary of key actions taken to address the concerns, analysis of trends and plans for engagement in the next time.

## 18 APPENDIX R: Internal Grievance Redressal Framework

HFE provides an equitable platform to all its permanent employees and its SPVs irrespective of their posting at Delhi office or site/regional office for registering any form of complaints and grievances and that the grievances would be addressed to a level acceptable to the aggrieved employees. Grievances may take the form of specific complaints for actual damages or injury, general concerns, incidents and impacts or perceived impacts.

### 18.1 Purpose

The purpose of GRM is to provide a forum to the internal stakeholders to voice their concerns, queries, and issues with the project. Such a mechanism would provide the stakeholders with a channel through which their queries/concerns will be addressed and will ensure timely responses to each query/concern. This will allow for trust to be built amongst the stakeholders and prevent the culmination of small issues into hindrances in project activities. This GRM does not cover the grievances raised by external stakeholders, such as local communities, interested persons and local governments etc. Internal grievances are those grievances that are received from internal stakeholders such as, permanent employees and its SPVs irrespective of their posting at Delhi office or site/regional office etc.

### 18.2 Scope

The provision of the plan should be implemented during both construction and operational phase by HFE. The plan will be applicable on those employed by HFE including - **permanent employees and its SPVs irrespective of their posting at Delhi office or site/regional office:**

#### Definition of terms

Term	Definition
Complaint	A complaint is a minor issue which can be resolved directly and by means of simple actions.
Concern	Concerns are questions and requests for information, or general perceptions unrelated to a specific impact or incident. If not addressed to the satisfaction of the complainant, concerns may become complaints.
Contractor	Persons working for external companies (or employed by an employment agency, directly engaged by HFE) that are under contract to carry out for HFE, but not being part of HFE's workforce.
Employer	The organisation HFE, which utilises the services of someone for remuneration or compensation in return
Employee	Persons engaged directly under the payroll of HFE
External Stakeholders	Those individuals or groups outside HFE that are impacted by HFE's activities during construction or operations or HFE's employees or workforce; or have an interest or influence in the same.
Grievance	A situation where an employee raises concerns about another employee's behaviour, such as breaching the Code of Conduct or Ethics Policy, displaying negligence or misconduct, or filing a complaint against a manager or colleague. This could also involve a male employee reporting sexual harassment by either a male or female colleague.
Grievance Mechanism	A formalized way to receive, assess, resolve, escalate, and close external grievances concerning HFE's activities during construction or operations or HFE's employees or workforce.
Internal Stakeholders	Those employed by HFE including not only the employees and management teams, but also its investors, contractors, sub-contractors, and workers.

### 18.3 Objective

The objective of Internal Grievance Redressal Mechanism is to develop a mechanism for receiving, registering, and addressing any grievances received from the internal stakeholders of HFE.

- To allow the internal stakeholders to air their grievances related to any aspect that is hampering their work environment without any fear of reprisal
- It will help to clarify the nature of grievances
- To investigate the reasons for dissatisfaction among the internal stakeholders, and take appropriate actions to resolve the situation fairly
- To create a healthy and comfortable working environment, which will lead to a more productive and committed work culture

### 18.4 Type of Grievances

Based on the understanding of the nature of activities during the construction and operations phase and HFE's internal stakeholders, an indicative list of the types of grievances have been identified for the project, as can be seen below:

#### 18.4.1 Employees/Workers Grievances

Provided below the anticipated key employee/workers related grievances:

- *Grievance related to working conditions:* Examples include poor physical condition of workplace, non-availability of proper tools and machines, unplanned changes in schedules and procedures.
- *Grievance related to Management policies:* Examples include terms of employment, wage rates and payment, overtime, and incentive related issues, working conditions, hours of employment, workload, training and settlement of terminal benefits, lack of opportunities for career growth amongst others.
- *Interpersonal grievances at workplace.* Examples include discrimination of any form, poor relationship with supervisor, gender bias, unethical behavior, harassment, or abuse of any form etc.
- The Grievance arising out of or related to Management's decision on transfers, promotion, demotion, and discharge on disciplinary grounds shall not come under the purview of this Grievance handling procedure.
- Grievance related to terms of employment: Example, if any of the terms of employment like job responsibilities, work hours, dress code, time off the job, and starting salary, benefits such as health insurance, life insurance, and retirement plans are not provided or fulfilled as initial contract, the employee can take up the issue to Internal Grievance Redressal Mechanism.

#### 18.4.2 Contractor and Contract Employees'/Workers' Grievances

Provided below the anticipated key contractor and contractual workers' grievances:

- Grievance related to working conditions Contractual workers' grievances can include denial of services based on discrimination, dissatisfaction with treatment by management, any dissatisfaction with working practices or conditions, concerns over health and safety, or any form of bullying or harassment, terms of employment, payment of applicable wages and overtime compensation etc.
- Grievance related to Management policies: Also included are issues or grievances pertaining to contractor's internal management policies, any internal personal conflicts between the contractor and contractual employees and workers, contractors' style of working, etc.

## 18.5 Grievance Redressal Process for Internal Grievances

The following underlines the process that will be adopted in handling employees and contractors' or contractual workers' grievances:



### 18.5.1 Step 1: Publishing the Grievance Procedure and communication Channel.

- Grievance committee, reporting manager, and HR department will ensure suitable disclosure of its grievance handling and redressal process to their workers.
- The description of the procedure will be shared on information boards and the Admin Team/HR department will undertake a workshop session for all workers to share the purpose and process of this procedure, encouraging legitimate complaints throughout the construction and O&M phase.
- Should the contractors have their own GRM, HFE will ensure that it is functioning effectively and review their grievance records on a periodical basis (monthly).

### 18.5.2 Step 2: Receive and Record Grievances

- A complaint can be submitted through the following channels:
  - At first, an aggrieved employee should first raise its complain with his/her reporting manager
  - Can be submitted verbally and then put on writing through email or hard copy
  - If the reporting manager is not being able to resolve by the grievance, or has exceeded 2 weeks, or the aggrieved employee is not satisfied with the solution, then both parties can take the issue to the HR
  - If the HR is unable to resolve the issue within a weeks' time, the same will be referred to grievance committee keeping in loop the reporting manager and second level supervisor
- Any grievance from any employee (including contractor employee and contractual worker) will be detailed and submitted as per the grievance form. Along with the grievance form, any supporting documentation that substantially explains the grievance will be attached.
- The designated Grievance committee will be accountable for receiving and maintaining all the grievances along with the reference number and a duplicate copy will be shared with HR which will be kept in the employee personal file.

The following information will be recorded in a Grievance Register Format as depicted in Table below.

#### Grievance register form



# GRIEVANCE REGISTER

HFE/HSE/SOP-08/C-1



S.No.	Employee/Worker/Community	Grievance	Corrective action taken	Level of GRC (1,2, &3)

<b>Maintained By:</b>	<b>Signature of HFE In charge:</b>
-----------------------	------------------------------------

### 18.5.3 Step 3: Acknowledgment on receipt of Grievance

- On receipt of a complaint in person, the reporting manager will sign on the grievance form (stating acknowledgement of the grievance received) and hand over a copy to the aggrieved person on the same day, if possible.
- Alternatively, a written acknowledgement will be sent back to the aggrieved person within three (3) working days from the date of receipt of any grievance.
- The acknowledgement will mention the unique reference number allotted to the grievance.

- In case any additional requirements (such as details or supporting evidence) are deemed necessary, the reporting manager will communicate the same to the aggrieved person.

#### 18.5.4 Step 4: Reviewing and Investigating Grievances

Firstly, the reporting manager will organize the process to validate the complaint's legitimacy and arrange for investigation of details. To begin this process, the nature of the grievance will be established to determine the measures needed for review and investigation. All grievances will undergo some degree of review and investigation, depending on the type of grievance and clarity of circumstances:

- Minor, straightforward issues may only need screening before proceeding to the next step (resolution options and response). Review of minor issues, especially those related to a complainant's request for information, can generally be handled easily by providing information on the spot, or referring the person to community liaison personnel.
- Less clear, more problematic, or repetitive issues, or group complaints may need a more detailed review prior to action. The reporting manager will seek advice internally from the HR/grievance committee, and in some cases turn to outside parties to help in the validation process, especially in cases of damage claims.
- Complex issues with multiple parties may need further investigation. This will be organized internally, or HFE will designate third-party experts to investigate when impartiality is important or when complex technical matters are involved. If an extensive investigation is found to be necessary, it will be initiated swiftly before circumstances change or the conflict escalates further.

#### 18.5.5 Step 5: Addressal of Grievances

- At first, an aggrieved employee should first raise its complain with his/her reporting manager
- If the reporting manager is not being able to resolve by the grievance, or has exceeded 2 weeks, or the aggrieved employee is not satisfied with the solution, then both parties can take the issue to the HR
- If the HR is unable to resolve the issue within a weeks' time, the same will be referred to grievance committee keeping in loop the reporting manager and second level supervisor
- Grievance committee shall review the employee's grievance and ask for producing any/all information/evidence deemed pertinent for the grievance and ensure its early resolution.
- Decision of grievance committee shall be considered as the final decision rendered by the company regarding the employee's grievance.
- Grievance committee will have to undergo all the proceeding and come up with a solution within one month from the time grievance was handed over
- The aggrieved employee can file for an appeal in the office of CEO or MD against the verdict of Grievance committee, if required, which has to be based on levels.
- The Grievance Redressal Committee will comprise of three members (Site supervisor, Site HR officer of Contractor, and Liasson officer), along with the HR acting as a observer and facilitator.

#### 18.5.6 Step 6: Back Communication and Closure of Grievances

- The HR on behalf of the committee will communicate the grievance resolution decision to the complainant and the same will inter-alia, contain the details of the resolution offered or in-case of rejection (if the grievance is out of the scope of internal grievances, the reasons for the same).
- The decision taken by the Grievance Committee will be deemed as final.
- The aggrieved employee can file for an appeal in the office of CEO or MD against the verdict of Grievance committee, if required, which has to be based on levels.

## **18.6 Handling of Other Grievance**

### **18.6.1 Non-project Related Complaints**

It is sometimes difficult to determine which issues are related to the project and which are not. If in doubt, employees designated to receive grievances will accept the complaint and assess its legitimacy and escalate them as required.

### **18.6.2 Complaints Constituting Criminal Activity and Violence**

In these cases, complainants will be referred to the formal justice system. The EHS Officer/Manager will also record the same in the grievance register (and the database); however, in terms of action will refer it to the concerned administration for suitable legal and criminal action.

### **18.6.3 Commercial Disputes**

Commercial matters will be stipulated for in contractual agreements and issues will be resolved through a variety of commercial dispute resolution mechanisms or civil courts.

## **18.7 Monitoring, Reporting and Reviewing the Procedure**

Monitoring and reporting can be tools for measuring the effectiveness of the grievance mechanism, and for determining broad trends and recurring problems so they can be resolved proactively before they become points of contention. Monitoring helps identify common or recurrent claims that may require structural solutions or a policy change, and it enables the project to capture any lessons learned in addressing grievances. A periodic review of HFE's internal grievances will be carried out at the ESG committee meetings at the corporate level.

### **18.7.1 Monitoring Indicators**

Grievance records will be maintained by the HR and reported to the ESG MF committee at the corporate level. These records will provide the context and relevant information for regular monitoring, both in an informal and formal manner. Depending on the extent of project impacts and the magnitude of grievances, monitoring measures will vary. Some of the monitoring indicators identified that will be monitored include:

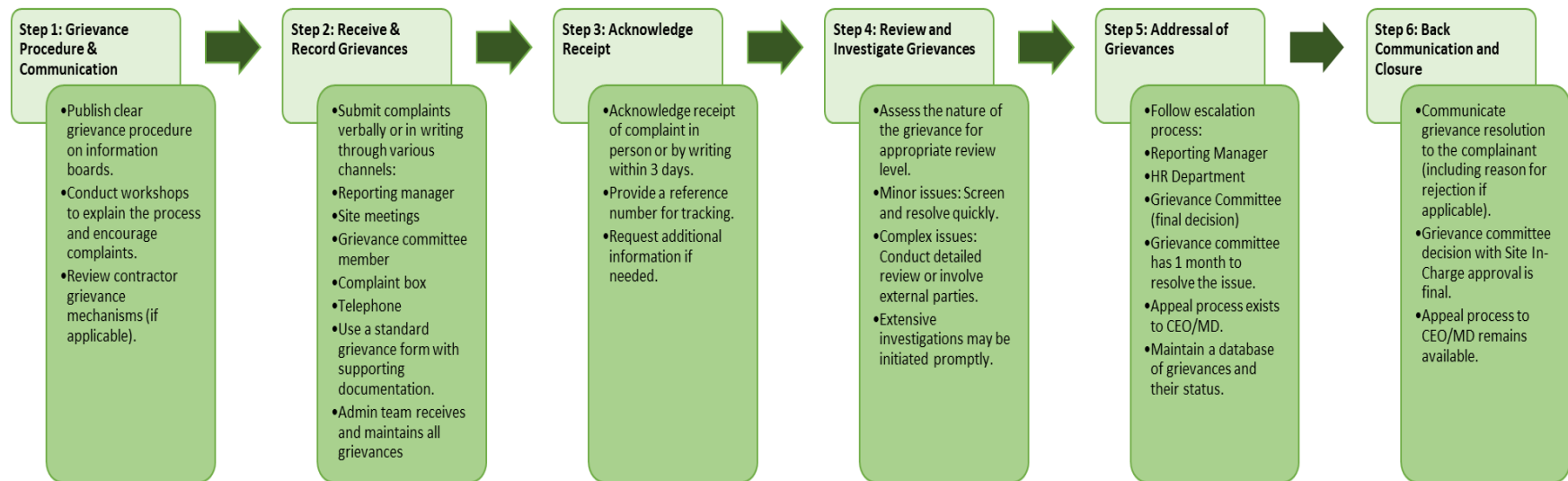
- Tracking the number of grievances received and resolved
- Apart from reviewing each grievance and analyzing effectiveness of the redressal mechanism, using the complaint records to analyze systemic deficiencies.
- Recognize patterns in the grievances received, and how they are being resolved.
- Whether there is a trend in particular complaints relating to working or living conditions, operations, or any specific issues.
- Understanding the types of solutions that work in addressing various category of grievances.
- Whether there are matters significantly construction activities or efficient operations, affecting company policy or requiring legal review.
- Whether the GRM (including the EPC contractor's existing mechanisms) meets requirements established by HFE as well as the expectations of all stakeholders.

Based on all grievances received, registered, documented, and tracked through a central database (excel sheet), periodic reports (quarterly or depending on the frequency of grievances received) shall be prepared for reporting to the management at HFE. This shall assist in tracking overall trends and patterns in concerns allowing emerging issues to be flagged and understood at an early stage. The statistics on grievance handling and redress will be included in action plans and annual reportin

## 18.7.2 Reporting and Recording

Based on all grievances received, registered, documented, and tracked through database regular reports are prepared for reporting to the senior management. This assists in tracking overall trends and patterns in concerns allowing emerging issues to be flagged and understood at an early stage. The statistics on grievance handling and redressal are to be included in action plans and annual reporting. Monitoring and reporting also create a base level of information that can be used by the company to report back to communities.

### Internal Grievance Redressal Mechanism Schematic Representation



The form below will be used as an official complaint form by an employee while filing grievances, and to keep a record of all the grievances that has been reported. Copies of the forms should be left in places where workers can access them easily and privately (e.g. changing rooms, the workshops, and other places where workers spend a lot of time). An identification number may be assigned to the grievance (e.g., number / year). This practice will facilitate tracking both the investigation process and the communication process without revealing the identity of the worker or the nature of the complaint.

---

### Grievance Registration Form

---

Grievance No.:

Date:

---

Phone no.

---

Category of grievance

---

Summary

---

Proposed date of response to grievance:

---

Signature of recording person

---

This receipt is acknowledgement of grievance registered on date \_\_\_\_\_. His/her case number is \_\_\_\_\_ and the date for response is \_\_\_\_\_.

---

Name of the person recording grievances:

---

Designation of the recording person:

---

Date of redresses:

---

Decision of Grievance Redressal Committee (give full details):

---

Claimant accepts the outcome:    Accepted

Not accepted

---

Signature of claimant:

---

## Grievance Registration Form

---

Signature of Grievance Manager  
(Admin in-charge):

---

Note:

Please note, if at any time the grievant is unsatisfied with the resolution of the grievance, they may choose to ask for an escalation to the next level or may resort to legal redress.

### 18.8 Resourcing

HFE shall set up a Grievance Committee that will ensure the implementation of the Internal Grievance Redressal Mechanism. The role the Grievance Committee are as follows:

- Committee members will meet at least once in three months. However, if necessary, it may meet more frequently at the instance of the convener or at the request of the other members to discuss the various issues raised.
- It is important that all three members of the grievance committee are present in the meeting
- The committee shall carry on its proceedings by conducting meetings, discussions with the aggrieved person and the party involved. They will refer to all the relevant documents/information/evidence as deemed pertinent.
- Aggrieved party will be given justifiable time to give a reply to the cause
- Committee will then give its recommendations based on the proceedings, but within a maximum period of 1 month from the date of petition
- Recommendations of the committee will be sent to the CEO for approval
- In case there is a deadlock on the verdict between the committee members, the decision of Chairman of the Committee will be considered final and binding.
- If a member of the grievance committee relates to the grievance of the aggrieved individual, the concerned member of the grievance committee will not participate in the proceeding and HR/CEO may nominate any other person as grievance committee for the specially that case
- The grievance committee shall not consider any grievance of general applicability or of collective nature raised collectively by more than one employee
- The grievance committee shall not be affected by any biases towards any party involved in the matter
- The grievance committee will hold the office for 3 years, and can be changed before completion with the approval of the CEO or the MD.

### 18.9 Training

Training will be provided by the Human Resource/ESG MF manager and site administration department of HFE's to all HFE's employees, contractors, contractual workers (including migrant workers and security guards), for handling of internal stakeholders, to allow for systemic engagement with stakeholders and avoid grievances. The training with respect to reporting and managing internal grievances will be relevant to their exposure and responsibilities for managers, all other employees, contractors, and workers, which shall include as a minimum:

- Expected behaviors and accepted practices when interacting with employees and stakeholders to avoid a grievance at first instance.

- Routes available for the complainants/ aggrieved to lodge grievances.
  - Roles and responsibilities for handling and resolving grievances (including key internal stakeholder contacts).
- Recording and tracking procedures

## 19 APPENDIX S: External Grievance Redressal Framework

### 19.1 Purpose

The GRM applies to all HFE’s external stakeholders during the construction and operation phase. It resolves grievances which are received from external stakeholders such as **project affected families, residents from surrounding villages, local administration representatives, regulatory bodies** etc. This External GRM does not cover the grievances raised by internal stakeholders, such as employees, contractors etc., who are to refer to HFE’s internal grievance redressal mechanism.

#### Terms and definitions

Term	Definition
Contractor	Persons working for external companies (or employed by an employment agency, directly engaged by HFE) that are under contract with HFE, but not part of HFE’s workforce.
Community Liaison Officer	A person employed by HFE, whose main purpose is liaison with authorities and the local communities regarding the activities and presence of HFE in the project area. As a minimum, the Community Liaison Officer (CLO) is appointed for the construction period.
Complaint	A complaint is a minor issue which can be resolved directly and by means of simple actions.
Concern	Concerns are questions and requests for information, or general perceptions unrelated to a specific impact or incident. If not addressed to the satisfaction of the complainant, concerns may become complaints.
Employer	The organization HFE, which utilizes the services of someone for remuneration or compensation in return
Employee	Persons engaged directly under the payroll of HFE
External Stakeholders	Those individuals or groups outside HFE that are impacted by HFE’s activities during Construction or Operation phase.
Grievance	A grievance is any discontent or dissatisfaction that may arise within the community due to HFE’s construction or operational activities or the behaviour of its workforce. The grievances may also include adverse economic, environmental, and social concerns. If the grievances among the stakeholders go unattended and unaddressed, it might lead to unhealthy relations and affect the efficiency of the project operations.
Grievance Mechanism	A formalized way to receive, assess, resolve, escalate, and close external grievances concerning HFE’s activities during construction or operations or HFE’s employees or workforce.
Internal Stakeholders	Those employed by HFE including not only the employees and management teams, but also its investors, contractors, sub-contractors, and workers.
Vulnerable Groups	Individuals or groups who could experience adverse impacts more severely than others based on their vulnerable or disadvantaged status. This vulnerability may be due to ethnicity, gender, language, religion, political views, dependence on natural resources, sickness or disability or other factors.



## 19.2 Scope

The Grievance Redressal mechanism provides a structured approach for receiving, evaluating, and resolving community complaints regarding the conduct or actions of the company, its contractors, or employees. This procedure is applicable throughout the entire lifespan of the projects, from site selection to decommissioning, covering mobilization, construction, and operations phases.

## 19.3 Objective

The objective of external Grievance Redressal Mechanism is to develop a mechanism for receiving, registering, and addressing any grievances received from the external stakeholders.

- To allow the external stakeholders to report their grievances related to any aspect that is being impacted by HFE's activity without any fear of reprisal
- It will help to clarify the nature of grievance
- To investigate the reasons for dissatisfaction among the external stakeholders, and take appropriate actions to resolve the situation fairly
- To create a healthy relation with the external stakeholders for a smooth running of the project.

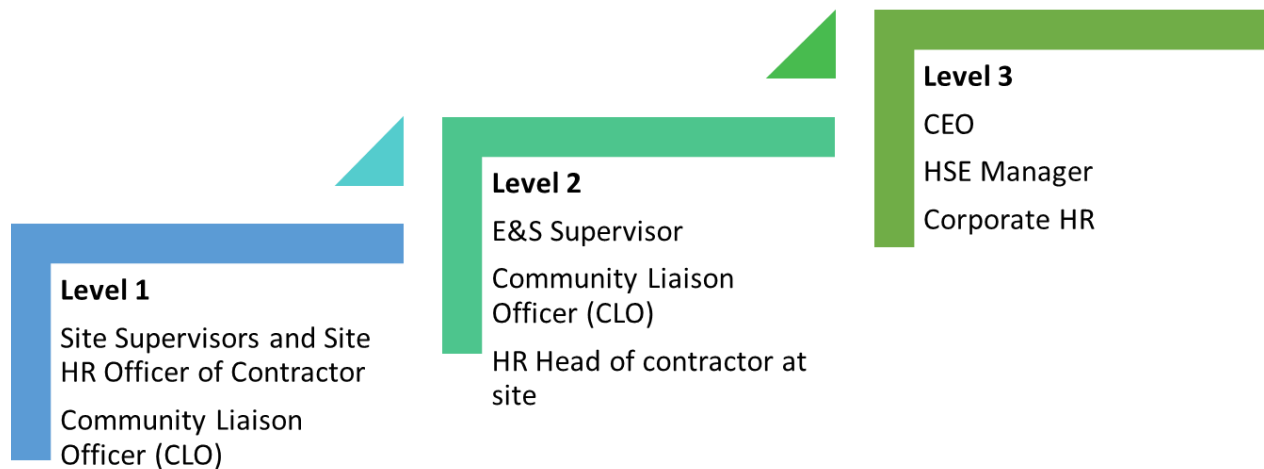
## 19.4 Roles and Responsibility

Responsible Parties	Roles and Responsibilities
HSE Manager at the project level	Is responsible for implementation of the GRM procedure
HR and Community Liaison Officer (CLO) (at site)	Is responsible for the implementation of the Environmental and Social (E&S) management system across all operational project sites is a priority, ensuring that accountability to communities and affected stakeholders is upheld. This involves monitoring processes to guarantee that E&S responsibilities are fulfilled. Internally and externally reported complaints regarding Environmental Health and Safety (EHS) and community aspects of operations are meticulously recorded, acknowledged, and investigated as incidents. Additionally, systems shall be regularly reviewed to identify, prioritize, plan, document, and monitor training needs and performance for both staff and subcontractors. Moreover, a Grievance Redressal Committee is established, ensuring fair composition of its membership, to address any grievances effectively and transparently.
Social Officer	Is responsible to coordinate effective communication on social issues and social performance to personnel on a regular basis; To actively participate in decision making at all stages to include monitoring corporate and operational site staff and subcontractors on social issues.
Grievance Redressal Committee (GRC)	The Grievance Redressal Committee (GRC) will convene either at the project site or corporate level upon the filing of grievances by workers or members of the community. If the lower-level GRC fails to resolve the grievance to the satisfaction of the complainant, it will be escalated to the higher level for further consideration.

## 19.5 Formation of a Grievance Redressal Committee

A site-level Grievance Redressal Committee (GRC) will be established, comprising representatives from both the contractors and HFE officials. The GRC will be structured into three levels: Levels I to III. Representatives at each level of the GRC are outlined as follows:

**Figure 19-1: Three tier Grievance Redressal Committee**



## 19.6 Types of Grievances

The following types of key community grievances would be considered under this grievance handling procedure:

- Grievances pertaining to any adverse impacts from HFE’s construction activities or operations on community assets or resources such as land procurement, impacts on community’s water supply system, damage to crops and livestock, damage to any private property or village structures from movement of vehicles, amongst others.
- Grievances due to project activities from construction and operations phase including noise and dust complaints during the construction, destruction of landscape and local visual aesthetics, project related traffic blockages, etc.
- Grievances arising from land-based disputes including irregularities on payment of dues or inadequate land compensation, land procured through unfair means, unauthorized encroachment by the project for storage of parts and materials or parking bays, amongst other issues.

- Conflict between any workers or labourer engaged during HFE’s construction or operations and local community. Grievances pertaining to any misbehavior, alcohol abuse, misconduct with any community member especially women, etc.
- Any other issues relevant to HFE’s construction activities or operations.

### 19.6.1 Grievance Redressal Process for External Grievances

HFE is committed to establish relevant communication tools and strategies to communicate with stakeholders in respect to relevant disclosures and grievances. HFE will establish a Grievance Redressal Committee (GRC) (refer **Figure4-1**).



### 19.6.2 Step 1: Publicizing the Grievance Procedure

- HFE will ensure public disclosure of its grievance handling and redressal process to the local community.
- The GRC and/or the designated Community Liaison Officer (CLO) will be responsible for the disclosure of the grievance redressal mechanism to the community and external stakeholders. They will undertake verbal and written, as well as formal and informal communication to disclose the grievance mechanism.
- The GRC or the CLO will undertake the sensitization of the community for grievance redressal. Information on the following will be communicated to the community and vulnerable groups (women headed households, women’s groups, scheduled castes, scheduled tribes, physically disadvantaged persons etc.):
  - Information on the types of complaints that fall under the ambit of this SGRC.
  - People who can raise complaints (persons affected by HFE’s activities)
  - Where, when, and how grievances can be lodged.
  - The types of responses that complainants can expect from the GRC or the CLO (a preliminary response will be made within 48 hours of the date on which the grievance was recorded)
- The GRC will be communicated and reminded widely during stakeholder engagement activities. The community will be informed as soon as possible if there is a change in the CLO, Site supervisor, or the grievance redressal process.
- The disclosure of the GRC will be undertaken in a culturally appropriate manner and will be displayed at prominent locations within the villages, in the local language.

### 19.6.3 Step 2: Grievance Receipt and Recording

The receipt and tracking of grievances will involve the following stages:

- Collecting and recording grievances as they come in.
- Registering them in a grievance log; and
- Tracking them to reflect their status and important details.

There are multiple channels of reporting a grievance. All members of the GRC are charged with the collection/receiving of grievances. Grievances from the local community members (and other external

stakeholders) will be registered (documented) at the project site directly by the CLO. The CLO will also document complaints received during group or individual meetings, during village visits, or at designated locations in the village (such as the panchayat office etc.). These grievances are to include:

- Complaints received during community/government meetings.
- Through the Community Liaison Officer (CLO).
- By submitting a complaint in the complaint box set up at the Security Control Room by walk-in by the community.
- Complaints received through staff or employees that have direct contact with communities (if authorized).
- Grievance forms will be maintained at a few strategic locations (substation/site office/main entrance gate), such that they are accessible by the community members. For written communication of complaints, a sample grievance form is included. The daily grievance log register will be recorded by the CLO and shared with the Admin Team on a regular basis.
- Site level personnel (authorized to take grievances, i.e., GRC) might also take complaints verbally at group or individual community meetings, during field visits, or any resourcing engagement activities. These will be noted in the grievance register as well.
- The grievance will be registered formally in the grievance register and contact information of the aggrieved person would be taken for back communication of resolution.

The grievances will be registered in a format as per the table below:

**Grievance Register Format**



- A formal confirmation will be assigned to each grievance with a complaint number (or another identifier), and a timeline for response (where possible and in the control of CLO) to assure the complainant that the company is responding properly.
- If a complaint is received in person, it will be acknowledged on the spot; and
- HFE will explain up front what complaints are outside the scope of the grievance mechanism and what alternative avenues communities can use to address these potential issues.

#### 19.6.4 Step 3: Acknowledgement on receipt

- On receipt of a complaint in person, the CLO will sign on the grievance form (stating acknowledgement of the grievance received) and hand over a copy to the aggrieved person either immediately or on the same day, if possible.
- Alternatively, a written acknowledgement will be sent back to the aggrieved person within three (3) working days from the date of receipt of any grievance.
- The acknowledgement will mention the unique reference number allotted to the grievance.
- In case any additional requirements (such as details or supporting evidence) are deemed necessary, the CLO will communicate the same to the aggrieved person.

#### 19.6.5 Step 4: Reviewing and Investigating Grievances

- The Site HR Officer/Liaison Officer of the contractor will open the complaint boxes every fifteen (15) days and forward the grievances to the Site Supervisor for further action.
- Each grievance will undergo assessment to determine if the issues raised fall within the scope of the grievance mechanism.
- During the assessment process, key issues and concerns will be identified, and efforts will be made to understand how the complaint can be resolved.
- Grievances will be screened and assessed by the Site HR Officer within 2 days. If intervention is deemed necessary, further action will be taken; otherwise, the complaint will be rejected, and the decision communicated to the complainant by the Liaison Officer/Site Supervisor.
- Grievances will be addressed at Level-I by the Site Supervisor and HR Officer of the contractor, with support from the Site Liaison Officer of HFE, within 15 working days.
- If a grievance remains unresolved at Level-I or fails to satisfy the complainant, it will be referred to the Project Manager of the contractor (Level-II).
- The HSE Manager will explore internal decision-making processes to resolve grievances. If necessary, a solution will be devised within 7 working days by the HSE Manager and HR head stationed at the project site. If no action is taken after intervention at these levels, the Level-III of GRC will make the final decision regarding the complaint.
- Minutes of Grievance Committee meetings at the site level will be recorded and circulated to corporate staff. Unresolved issues will be escalated to the next level of the committee.
- At Level-III, the Corporate HR Head will attempt to address the grievance, with support from the HSE Manager in decision-making. Meetings with the complainant may be arranged, and evidence examined, with the grievance closed within 5 working days of referral.
- The complainant will have the opportunity to be present at committee meetings and discuss the grievance at all levels of the GRC. If the grievance remains unresolved after going through all levels, the complainant will have the option to seek redress through appropriate legal channels.

#### 19.6.6 Stage 5: Grievance Resolution

- Once a decision is reached, the same will be communicated back to the aggrieved person through the contact information shared by the same through phone, letter, or in-person.

- The records within the grievance register will also be updated and the case closed, when addressed to the satisfaction of the complainant.
- The closure date of the grievance will be recorded and communicated to the aggrieved and an acknowledgement will have to be received from the complainant. This may be in form of minutes of meeting with an aggrieved group signed off by its designated head or a written signature/thumbprint of an individual/ written email etc.
- The GRC will make every effort to ensure that all grievances are addressed satisfactorily. In case no decision is reached, the same will also be communicated back to the aggrieved person.
- In case the grievance is not resolved, the aggrieved person is free to register the grievance with local/statutory authorities having necessary power and authority to resolve the grievance.

## **19.7 Handling of other Grievances**

### Non-Project Related Complaints

It is sometimes difficult to determine which issues are related to the project and which are not. If in doubt, the SGRC Cell designated to receive grievances will accept the complaint and assess its legitimacy.

### Complaints Constituting Criminal Activity and Violence

In these cases, complainants will be referred to the formal justice system for suitable legal and criminal action. The CLO will also record the same in the grievance register.

### Commercial Disputes

Commercial matters will be stipulated for in contractual agreements and issues will be resolved through a variety of commercial dispute resolution mechanisms or civil courts.

### **19.7.1 Monitoring, Reporting and Evaluation the Procedure**

Monitoring and reporting are tools for measuring the effectiveness of the grievance mechanism, and for determining broad trends and recurring problems so they can be resolved proactively before they become points of contention. Monitoring helps identify common or recurrent claims that may require structural solutions or a policy change, and it enables the project to capture any lessons learned in addressing grievances. A periodic review or external grievances will be carried out regularly by the GRC.

### **19.7.2 Monitoring Indicators**

Grievance records will provide the background information for regular monitoring, both informal and formal. Depending on the extent of project impacts and the magnitude of grievances, monitoring measures will vary. Some of the monitoring indicators identified that will be a part of the monitoring mechanism include:

- Tracking the number of community grievances received and resolved
- Apart from reviewing each grievance and analyzing effectiveness, using complaints to analyze systemic deficiencies.
- Recognize patterns in the grievances the project receives, and how they are being resolved.
- Average time taken for resolution of grievances falling under particular categories.
- Communities preference/feedback to any of the several channels to submit grievances.
- Whether there is subgroup in the community raising complaints (for example, women, elderly).
- Whether there is a trend in particular groups particular kind of complaints relating to operations or accessibility or any specific issues.
- Effectiveness of different solutions in addressing various category of grievances.

- Whether there are matters significantly affecting company policy or requiring legal review.
- Issues of cultural appropriateness and transparency.
- Whether the existing system meets requirements established by the project as well as the expectations of all stakeholders; and
- Circulating good practices and effective grievance redressal at the project level across to the respective community groups.

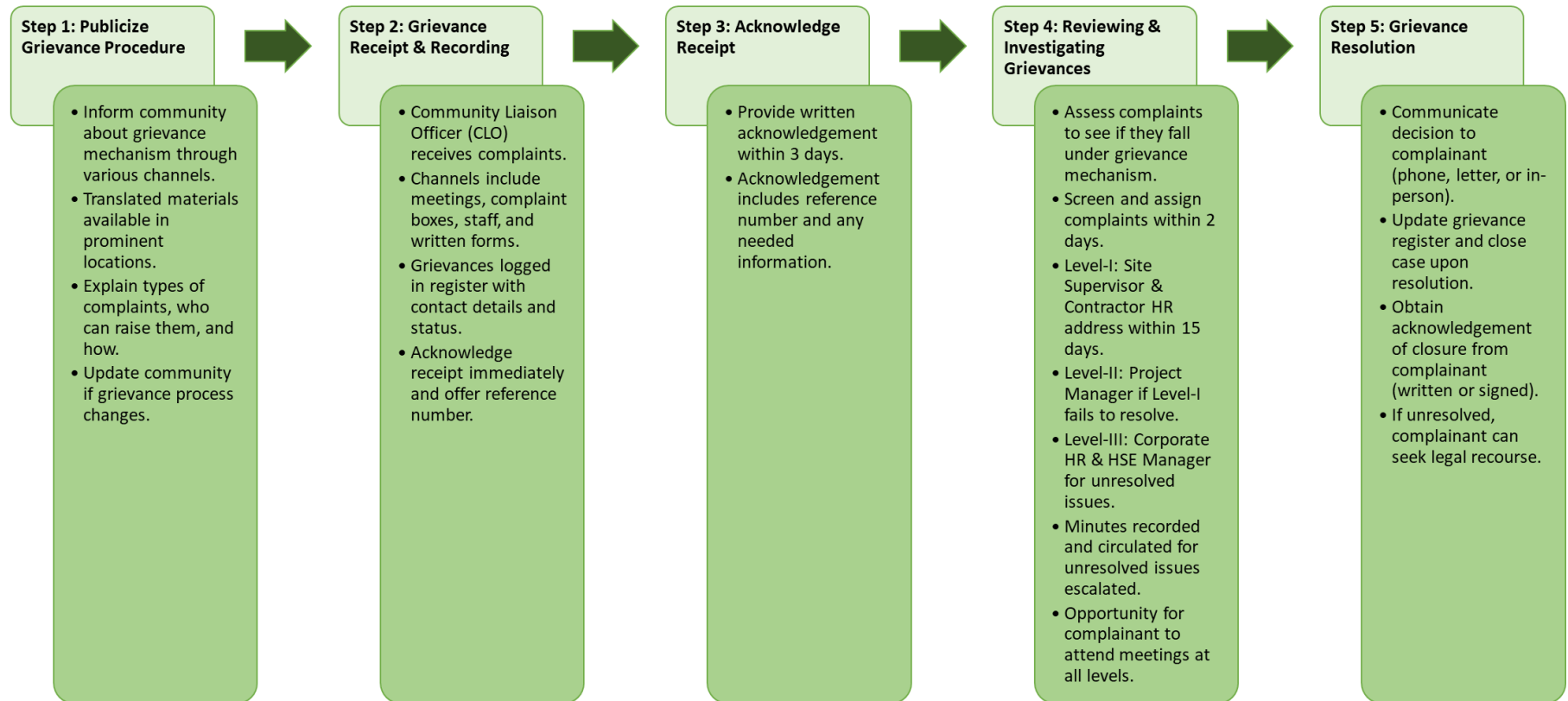
### 19.7.3 Reporting and Recording

Based on all grievances received, registered, documented, and tracked through a central database (excel sheet), periodic reports (quarterly) will be prepared for reporting to the HFE's ESG MF committee. This will assist in tracking overall trends and patterns in concerns allowing emerging issues to be flagged and understood at an early stage. The statistics on grievance handling and redress will be included in action plans and annual reporting. Monitoring and reporting will also create a base level of information that will be used by the HFE to report back to communities.

Additionally, any events of community agitation or other significant disturbances, that may have the risk of business interruptions or hamper the image of the project, will be reported to the HFE's ESG MF committee within 24 hours (verbally) and 72 hours (documented report) of the occurrence of the event.



## External Grievance Redressal Mechanism Schematic Representation



The form below will be used as an official complaint form by an employee while filing grievances, and to keep a record of all the grievances that has been reported.

---

**External Grievance Redressal Form**

Grievance No.:

Date:

---

Name and Gender

---

Village

---

Phone no.

---

Category of grievance

---

Summary

---

Concerned Department

---

Name of person recording grievances:

---

Designation of recording person:

---

Proposed date of response to grievance:

---

Signature of recording person

Signature of complainant

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This receipt is acknowledgement of grievance registration by \_\_\_\_\_, on date \_\_\_\_\_. His/her case number is \_\_\_\_\_ and the date for response is \_\_\_\_\_.

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Name of the person recording grievances:

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Designation of the recording person:

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Date of redresses:

---

Decision of Community Grievance Redressal Mechanism Committee (give full details):

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Claimant accepts the outcome: Accepted

Not accepted

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**External Grievance Redressal Form**

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Signature of claimant:

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Signature of Grievance Manager  
(Admin in-charge):

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Note:

Please note, if at any time the grievant is unsatisfied with the resolution of the grievance, they may choose to ask for an escalation to the next level or may resort to legal redress.

## **19.8 Resourcing**

HFE will establish a SGRC Cell at the project site in Eval throughout the construction and operations phase. The SGRC Cell will comprise of the Site In-Charge, CLO, and Admin Team. The SGRC Cell will work closely with the CSR Team HFE will ensure a budget allocation to ensure the effective function of the SGRC.

## **19.9 Training**

Training will be provided by HFE's Human Resource/ESG MF Manager and administration Department to all HFE staff, for handling external stakeholders, to allow for systemic engagement with stakeholders and avoid grievances. The training shall also cover understanding of community grievance redressal, relevant to their exposure and responsibilities for managers, all other employees, contractors, and visitors, which shall include as a minimum:

- Expected behaviors and accepted practices when interacting with communities and external stakeholders to avoid a grievance in the first instance.
- Routes available for community members and other interested external stakeholders to lodge grievances.
- Roles and responsibilities for handling and resolving grievances (including key internal and external stakeholder contacts).
- Recording and tracking procedures.

## 20 APPENDIX T: Labour Accommodation

HFE is responsible for the provision of workforce and to ensure the workers engaged by third parties and the management of workforce related risks. The purpose of the worker accommodation management system is to define the actions to manage the workers' onsite accommodation during the construction activities, to comply with Indian legislation and IFC and EBRD requirements. The worker accommodation shall be a healthy, safe, secure, and comfortable accommodation. HFE shall develop a worker accommodation plan to establish practical procedures for avoiding any negative impact to communities surrounding HFE Project Sites, and by mitigating the potential significant negative impacts related to a construction/ operations workforce accommodation.

The objective of this labour accommodation framework is to ensure proper and standardized accommodation for labour and workmen employed during construction, operation and management, and decommissioning period of the project, and to provide a benchmark for best practice such that all possible preventative measures will be taken to avoid any possible violations during construction works and during the operational phase of the projects under the Energy Portfolio.

**Note:** The Company shall focus on local labour so that there is limited requirement for a labour camp and shall be provided away from the existing settlements in the area to avoid social conflicts among villagers and labourers. However, if the labour accommodation required, labour accommodation shall be provided by respective contractors while EHS Officer will supervise and monitor the activities performed by the contractors and other workers. If labour camps are specifically developed for the project within or outside the boundary, specification as per EBRD and IFC Guidelines for Labour Camp is to be followed to the extent possible. HFE as the principal employer shall ensure that the contractors are providing workers with adequate accommodation facility and maintaining good health & hygiene conditions.

### 20.1 Scope

- Outlines actions and measures necessary for providing accommodation.
- Covers accommodation standards for both labours employed by HFE and its contractors (and subcontractors)
- Specific control measures to be implemented by HFE and its contractors (and subcontractors), to achieve this.

### 20.2 Applicable Reference Framework

- The Factories Act, 1948
- Building and Other Construction workers (regulation of Employment and Conditions of Service) act 1996
- IFC/EBRD Workers Accommodation: Processes and Standards
- IFC Performance Standard 2: Labour and Working Conditions
- IFC Performance Standard 4: Community, Health, Safety and Security

### 20.3 Monitoring Mechanism

An effective management system requires a robust monitoring mechanism to regularly check for its efficiency. Thus, a periodic monitoring of the workers accommodation should be undertaken to assess the performance against some pre-defined standards. A worker accommodation assessment checklist is provided in section below and the minimum requirement of local accommodation are as follows:

**Table 20-1: Minimum requirement of local accommodation**

Sr. No.	Aspect	Requirements
1.	Health Measures	<ul style="list-style-type: none"> <li>• Require fitness certificate of each worker issued by a registered medical practitioner.</li> <li>• Pest Control to be done every two months labour accommodation.</li> </ul>
2.	General Housekeeping and Sanitation	<ul style="list-style-type: none"> <li>• The entire accommodation area shall be managed with best housekeeping practices. Sweeping the area daily at least once, prohibiting spitting, bathing, washing, etc. in open community space, not throwing garbage and waste food indiscriminately in open areas, etc.</li> <li>• Separate housekeeping staff shall be engaged in the labour camps for regular cleaning of the accommodation, kitchen and toilet premises,</li> <li>• Daily sweeping of rooms and camp premises shall be undertaken,</li> <li>• Regular cleaning of sanitary facilities shall be undertaken,</li> <li>• The kitchen and canteen premises shall be established under good hygiene conditions; o Cooking or preparation of food shall be prohibited in accommodation quarters,</li> <li>• Daily meal times shall be fixed for the labour,</li> <li>• Smoking and alcohol consumption shall be prohibited in the workplace; o Water logging shall be prevented at areas near the labour campsites.</li> <li>• The proper soak pit tank should be made for disposal of sanitary waste at site.</li> <li>• Cleanliness of windows</li> <li>• Tidiness of storage areas</li> <li>• Tidiness of rest areas</li> <li>• Provision of waste disposal bins</li> <li>• Adequacy of ventilation</li> <li>• Passageways free from obstruction</li> <li>• Checklists pertaining to the daily housekeeping schedule shall be maintained and displayed at camps, toilets and kitchen.</li> </ul>
3.	Solid Waste Generation and Disposal	<ul style="list-style-type: none"> <li>• The municipal solid waste generated from labour camps, mostly comprises of compostable wastes like vegetable matters and combustible waste like paper, cans, plastic and some non-degradable waste like glass/glass bottles. The following measures shall be adopted by HFE for ensuring effective management of solid waste at the campsites:               <ul style="list-style-type: none"> <li>o Separate bins with proper markings in terms of recyclable or non-recyclable waste shall be provided in the labour camps and kitchen premises in sufficient numbers for collection of garbage. Preferably, a two-bin system (Green and Blue) shall be installed to facilitate an organized waste management system.</li> <li>o The collection and storage procedure shall be displayed at identified locations for reference of all workers and contractors.</li> <li>o Solid Waste generated shall be collected in common camp site garbage barrels.</li> <li>o Collected garbage shall not be burnt in open. Solid Waste shall be transported to nearest municipal disposal site. If area is available onsite, treatment systems such as composting shall be encouraged.</li> </ul> </li> </ul>

Sr. No.	Aspect	Requirements
		<ul style="list-style-type: none"> <li>○ Construction wastes to be handled and managed separately in accordance with the Construction and Waste Management Rules, 2016.</li> <li>○ Training on solid waste management procedures shall be part of the induction training for labour.</li> <li>○ Food waste shall be collected separately in covered containers and disposed of in dug pits and covered with soil on daily basis.</li> <li>○ EHS Officer shall identify the nearest municipal solid waste disposal facility and tie up with the concerned local body for disposal of waste at frequent intervals.</li> <li>○ EHS Officer shall ensure that all procedures pertaining to solid waste management are strictly adhered to by the labour and contractors.</li> </ul>
4.	Provision for Drinking/other Water	<ul style="list-style-type: none"> <li>• The drinking water provided to labour shall conform to the Indian Standard Specifications IS 10500:2004 for drinking water. ☐</li> <li>• Purified drinking water cans sourced from authorized vendors/ municipal water department shall be provided in all the camps and working areas.</li> <li>• In case water is sourced from regular taps or bore wells, it shall be appropriately treated before consumption. The contractor shall distribute chlorine tablets to the labour on weekly basis.</li> <li>• Water samples will be sent to recognized laboratories and testing reports will be well documented.</li> <li>• The water storage tanks shall be cleaned every fifteen days to ensure safe drinking water.</li> <li>• Wholesome drinking water at the rate of 10 litres per person per day shall be provided in the accommodation sites which shall be used for drinking and cooking purposes only.</li> <li>• For bathing, washing and ablution purposes, potable water at the rate of 30 litres per person per day shall be provided.</li> <li>• For bathroom water should be always available.</li> <li>• Construction water should not be supplied for drinking.</li> <li>• An adequate number of shower/bathroom facilities is provided to workers. Standards range from 1 unit to 15 persons to 1 unit per 6 persons.</li> </ul>
5.	Bathing Facilities	<ul style="list-style-type: none"> <li>• Handwash facilities should consist of a tap and basin, soap, and hygienic means of drying hands.</li> <li>• Separate male and female bathrooms to be provided. 1 bathroom per minimum 6 people, maximum 15 people.</li> <li>• Bathing room floors shall be made of smooth finish but not slippery materials; they shall be impervious to moisture. Floor drains shall be provided in all bathrooms.</li> </ul>
6.	Sanitary Facilities	<ul style="list-style-type: none"> <li>• The dwelling units will be supported by common latrines and bathing facilities duly segregated for male and female labour.</li> <li>• Adequate number of toilets shall be provided in the accommodation facilities. A minimum of 1 unit to 15 males and 1 unit for 10 females shall be provided. These toilets shall be distinctly marked “for men” and “for women” by signs printed in English and in the native language of the persons occupying the camp or marked with easily understood pictures or symbols.</li> </ul>

Sr. No.	Aspect	Requirements
		<ul style="list-style-type: none"> <li>• Urinals shall be provided on the basis of one unit or 2 linear feet of urinal trough for each 25 men. Urinals shall be provided with adequate water flush and proper septic tank mechanism.</li> <li>• Adequate arrangements for water shall be made with a provision of at least 80-100 litres per capita per day</li> <li>• Disposal of sewage shall be made through a septic tank-soak pit arrangement</li> <li>• Proper drainage system shall be provided for collection of wastewaters from washing areas and kitchens that will be further disposed through the soak pits.</li> </ul>
7.	Creche Facilities <sup>20</sup>	As per the requirement of the BOCW Act, and Factories Act
8.	Living Space	Each adult person shall have minimum lodging area of not less than 40 square feet.
9.	Firefighting Means	Recommend keeping adequate fire extinguishers (minimum 3 to 4 of ABC Type) provided in each accommodation block and kitchen premises
10.	Fuel requirement	<ul style="list-style-type: none"> <li>• To ensure that the influx of labourers in the project area does not lead to cutting of trees in nearby areas, necessary arrangements for supply of fuel wood to the labourers on an individual basis shall be done by the contractor during construction phase. Following procedure shall be followed for fuel provisions in the labour camp: <ul style="list-style-type: none"> <li>○ LPG cylinders/ fuel wood purchased from authorized vendors shall be provided to the labour.</li> <li>○ The contractor shall maintain receipts of purchase of fuel wood from authorized vendors.</li> <li>○ The amount of fuel wood or LPG cylinders distributed to labour shall also be recorded. ○ No labour shall be allowed to collect fuel wood from the adjoining forests of the project area.</li> </ul> </li> </ul>
11.	First Aid Box	Availability of the First Aid Box in the accommodation. Trained first aider should be always available.
12.	Lighting	<ul style="list-style-type: none"> <li>• Each habitable room in a camp shall be provided with at least one ceiling-type light fixture and toilet area too.</li> <li>• Passages in labour camp should have light facilities</li> <li>• Serviceability of light fittings</li> <li>• Adequacy of lighting</li> <li>• Serviceability of power outlets/leads</li> <li>• Adequacy of power outlets (qty &amp; ratings)</li> <li>• Accessibility of main switch/circuit breakers</li> <li>• Labelling of switches/fuses/circuit breakers</li> <li>• Electrical shock resuscitation drill, notices instructions</li> </ul>

<sup>20</sup> The requirement of creche as per the Factories Act, 1948 and the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 are as follows:

- According to Section 48 of the Factories Act, 1948, any factory employing 30 or more women workers are required to provide creche facilities for the use of children under the age of 6 years of such women. The creche should be conveniently accessible to the mothers and should have adequate lighting, ventilation, cleanliness and other amenities as prescribed by the State Government.
- According to Section 35 of the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996, in every place where more than 50 female building workers are ordinarily employed, there should be a suitable room or rooms for the use of children under the age of 6 years of such female workers. The creche should be adequately staffed and equipped with suitable furniture, toys, games and other equipment as prescribed by the State Government. The creche should also provide milk or refreshment and facilities for washing and changing clothes for the children.

Sr. No.	Aspect	Requirements
13.	Labour Accommodation Rooms	<ul style="list-style-type: none"> <li>• Storage of electrical equipment</li> <li>• Each room should at least be of 4-5.5 square meter.</li> <li>• Ceiling height should be at least 2.10 meter.</li> <li>• About 15-20 % additional area shall be provided for circulation</li> <li>• Separate bed to be provided for each worker.</li> <li>• Clean mattress and bedding should be provided to each worker.</li> <li>• Bunks are not allowed.</li> <li>• Rooms should be cleaned regularly.</li> <li>• Ventilation in room should be there.</li> <li>• Fan and lights should be there in each room.</li> <li>• Not more than eight workers shall be accommodated in the same room, with separate beds for each worker, partitions to ensure privacy and a minimum distance of one metre between beds.</li> <li>• The accommodation will be duly insulated to keep the temperature as acceptable, notwithstanding the need for adequate ventilation</li> <li>• Permanent roofing structures should be provided using Corrugated galvanised iron sheets or Non Asbestos Corrugated Roofing Sheets (preferable) and shall be fixed adequately at the edges over the wall and J-clamps on the intermediary supports (pipe)</li> <li>• All doors and windows should be lockable and provided with mosquito screens where conditions warrant.</li> <li>• Every resident is provided with adequate furniture such as a table, a chair, a mirror, and a bedside light.</li> <li>• Common recreational facilities such as television, radios, etc. should be provided for the labour.</li> <li>• Both natural and artificial lighting facilities shall be provided and maintained in the accommodation</li> <li>• Mosquito coil or net should be provided for each worker.</li> <li>• In winter blankets should be provided.</li> <li>• Pest control to be carried out every 15 days at the labour accommodation.</li> </ul>
14.	Facilities	<ul style="list-style-type: none"> <li>• Separate storage area to be provided in each room of the labour accommodation for storing personnel equipment and PPEs.</li> <li>• Separate washing area to be provided apart from bathrooms.</li> <li>• Cloths hanging facility should be there outside labour accommodation.</li> <li>• Condition of lifting &amp; stacking aids</li> <li>• Ventilation and cleanliness</li> <li>• Lighting and ventilation in storage areas</li> <li>• Condition of items in storage (shelf life)</li> <li>• Isolation &amp;labelling of hazardous substances</li> <li>• Display of warning signs</li> <li>• Proper storage of chemicals/flammable</li> </ul>
15.	Kitchen	<ul style="list-style-type: none"> <li>• Separate kitchen area to be provided not to be cooked within and close to the rooms.</li> <li>• Wood should not be used for cooking.</li> <li>• Kitchen should have water facilities.</li> <li>• Walls of the kitchen should be fire resistant.</li> <li>• Canteens have a reasonable amount of space per worker. Standards range from 1 square metre to 1.5 square meters.</li> </ul>



Sr. No.	Aspect	Requirements
		<ul style="list-style-type: none"> <li>Food waste and other refuse are to be adequately deposited in scalable containers and removed from the kitchen frequently to avoid accumulation.</li> </ul>
16.	Security	<p>The contractor engaged for rendering security services at site shall put in place the following security measures to ensure the safety of the workers:</p> <ul style="list-style-type: none"> <li>The contractor shall be responsible for deploying adequate number of guards which will be supervised by the Site Manager.</li> <li>A background check shall be carried out for the security guards prior to recruitment to ensure that they have not been implicated in any previous crimes.</li> <li>Access to the camp shall be limited to the residing workforce, construction camp employees, and those visiting personnel on business purposes;</li> <li>Access will be controlled through means of barricades. Visitor details will be maintained in a register at the main gate;</li> <li>Adequate day-time and night-time lighting shall be provided;</li> <li>The security personnel shall be provided with training to respect the community traditions and practices, dealing with violence and the use of force;</li> <li>The campsites shall be provided with firefighting equipment and portable fire extinguishers.</li> </ul>
17.	Food	Food provided to labour shall have appropriate nutritional value and shall take into account religious/cultural backgrounds
18.	Waste in Labour Accommodation	All waste to be collected in separate bins. Food Waste to be disposed separately not with scraps.
19.	Drainage	<ul style="list-style-type: none"> <li>There has to be a proper drainage channel from kitchen area of labour accommodation for discharge of wastewater which should be connected with septic tanks.</li> <li>Wastewater from bathroom should be collected into septic tanks through underground drainage channels.</li> <li>No wastewater should flow or collect in front of rooms or anywhere else at site.</li> </ul>
20.	Safety publications	<ul style="list-style-type: none"> <li>Availability/state of safety publications</li> <li>Safety posters &amp; warning signs</li> </ul>
21.	Grievance and Workers Right	<ul style="list-style-type: none"> <li>For registering of grievances of labours contractors should make provisions like appointing a dedicated person for the same and keeping an anonymous box to be kept at site.</li> <li>Workers are made aware of their rights and obligations and are provided with a copy of the internal workers' accommodation rules, procedures, and sanction mechanisms in a language or through a media which they understand.</li> </ul>

## 20.4 Trainings

To keep in line with the requirements of labour accommodation, HFE shall ensure to organize trainings for the auditors undertaking monthly, quarterly, bi-annual, and annual audits of accommodation standards being maintained. These trainings aim to spread awareness and educate the auditors on best practices for labour

accommodation and to help track real implementation of the accommodation standards and requirements. These trainings are to be held monthly.

The Auditors are to be trained on the procedure and process of undertaking the audit, including the following aspects:

- Observation based audit to identify physical parameters of living conditions (condition of living quarters, washroom, cleaning areas)
- Consultations with labourers on sanitation standards and food and water quality
- Consultations with local community for impact identification
- Waste management identification

Additionally, training is to be provided to contractors that will be responsible for providing and maintaining the labour accommodation infrastructure. These trainings aim to spread awareness and educate the contractors on best practices for labour accommodation and to help track real implementation of the accommodation standards and requirements. These trainings are to be held monthly.

## 20.5 Roles & Responsibilities

The following monitoring activities will be undertaken and reported by the HFEEHS officer. The table below provides these activities linked to the workers’ accommodation in different stages of the project:

Sr. No.	Monitoring Activity	Frequency
1	Workers’ accommodation condition	Monitoring is to be conducted initially during construction phase; renting phase of the accommodation; and monthly for maintenance of standard accommodation conditions
2	Quality of Food	Monitoring is to be conducted monthly, during all phases of the project

In addition to routine monitoring, the HFEEHS Officer will also undertake internal inspections and audits to identify any non-conformances. Based on the internal audit results and monitoring, corrective and /or enhancing actions will be implemented.

## 20.6 Records

Site level EHS Officer to ensure that all above mentioned activities are undertaken (refer **Table 20-1**), and maintain records of Muster roll, with details of each employee, Daily attendance record, Records of waste management, Record of Drinking water quality, Labour Camp daily inspection report.

Auditors/Contractors/Sub-Contractors are to maintain the following assessment checklist at the time of every audit conducted to assess labour accommodation conditions.

### Worker Accommodation Assessment Checklist:

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
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#### Assessing the need for workers’ accommodation

Has there been an assessment of

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
workers' availability in the neighbouring communities?						
Has there been an assessment of the skills and competencies of the local workforce and how do those skills and competencies fit the project's need?						
Has there been an assessment of the possibility of training a local workforce in order to fulfil the project's needs?						
<b>Availability of housing</b>						
Has there been a comprehensive assessment of the different type of housing available in the surrounding communities prior to building any workers' accommodation?						
Has there been an assessment of the impact on the communities of using existing housing opportunities?						
Have measures to mitigate adverse impacts on the local housing						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
market been identified?						
<b>Assessing Impacts of workers' accommodation on communities</b>						
Have the potential health and safety impacts and consequences of land acquisition and involuntary resettlement occurring during the construction phase of the workers' accommodation been included in the assessment?						
Have the impacts of workers' accommodation on community infrastructures, services and facilities been included in the assessment?						
Have the impacts on local community's businesses and local employment been included in the assessment?						
Have general impacts of workers' accommodation on communities' health, (notably the increased risk of road accidents and of communicable diseases), and community social cohesion been						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
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included in the assessment?

Does the assessment include appropriate mitigation measures to address any adverse impacts identified?

**Types of workers' accommodation**

Has consideration been given to provision of family accommodation?

Are individual accommodations comprising bedrooms, sanitary and cooking facilities provided as part of the family accommodation?

Are adequate nursery/school facilities provided?

Is special attention paid to providing adequate safety for children?

**Standards for workers' accommodation**

Have the relevant national/local regulations been identified and implemented?

Is the location of the facilities designed to avoid

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
flooding or other natural hazards?						
Are the living facilities located within a reasonable distance from the worksite?						
Is transport provided to worksite safe and free?						
Are the living facilities built using adequate materials, kept in good repair, and kept clean and free from rubbish and other refuse?						
Is the site adequately drained?						
Depending on climate are living facilities provided with adequate heating, ventilation, air conditioning and light systems including emergency lighting?						
Do workers have easy access to a supply of clean/ potable water in adequate quantities?						
Does the quality of the water comply with national/local requirements or WHO standards?						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
Are tanks used for the storage of drinking water constructed and covered to prevent water stored therein from becoming polluted or contaminated?						
Is the quality of the drinking water regularly monitored?						
Are wastewater, sewage, food, and any other waste materials adequately discharged in compliance with local or World Bank standards and without causing any significant impacts on camp residents, the environment, or surrounding communities?						
Are specific containers for rubbish collection provided and emptied on a regular basis?						
Are pest extermination, vector control and disinfection undertaken throughout the living facilities?						
Are the rooms/dormitorie						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
s kept in good condition?						
Are the rooms/dormitories aired and cleaned at regular intervals?						
Are the rooms/dormitories built with easily cleanable flooring material?						
Are the rooms/dormitories and sanitary facilities located in the same buildings?						
Are residents provided with enough space?						
Is the ceiling height high enough?						
Is the number of workers sharing the same room/dormitory minimized?						
Are the doors and windows lockable and provided with mosquito screens when necessary?						
Are mobile partitions or curtains provided?						
Is suitable furniture such as table, chair, mirror, bedside light provided for every worker?						



Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
Are separate sleeping areas provided for men and women?						
Is there a separate bed provided for every worker?						
Is there a minimum space of 1 meter between beds?						
When double deck bunks are in use, is there enough clear space between the lower and upper bunk of the bed?						
Are triple deck bunks prohibited?						
Are adequate facilities for the storage of personal belongings provided?						
Are sanitary and toilet facilities constructed from materials that are easily cleanable?						
Are sanitary and toilet facilities cleaned frequently and kept in working condition?						
Are toilets, showers/bathrooms and other sanitary facilities designed to provide workers						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
with adequate privacy including ceiling to floor partitions and lockable doors?						
Are separate sanitary and toilet facilities provided for men and women?						
Is there an adequate number of toilets and urinals?						
Are toilet facilities conveniently located and easily accessible?						
Is the shower flooring made of anti-slip hard washable materials?						
Is there an adequate number of hand wash basins and showers/bathrooms facilities provided?						
Are the sanitary facilities conveniently located?						
Are shower facilities provided with an adequate supply of cold and hot running water?						
Are canteen, cooking and laundry facilities built with adequate and						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
easy to clean materials?						
Are the canteen, cooking and laundry facilities kept in clean and sanitary condition?						
If workers cook their own meals, is kitchen space provided separately from the sleeping areas?						
Are adequate facilities for washing and drying clothes provided?						
Are workers provided with enough space in the canteen?						
Are canteens adequately furnished?						
Are kitchens provided with the facilities to maintain adequate personal hygiene?						
Are first aid kits provided in adequate numbers?						
Are first-aid kits adequately stocked?						
Is there an adequate number of staff/workers trained to provide first aid?						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
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Are there any other medical facilities/services provided on site? If not, why?

Are workers provided with dedicated places for religious observance?

**Management and Staff**

Are there carefully designed worker camp management plans and policies especially in the field of health and safety (including emergency responses), security, workers' rights, and relationships with the communities?

Where contractors are used, have they clear contractual management responsibilities and duty to report?

Does the person appointed to manage the accommodation have the required background, competency, and experience to conduct his mission and is he/she provided with the adequate responsibility and

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
authority to do so?						
Is there enough staff to ensure the adequate implementation of housing standards (cleaning, cooking and security in particular)?						
Are staff members recruited from surrounding communities?						
Have the staff received basic health and safety training?						
Are the persons in charge of the kitchen particularly trained in nutrition and food handling and adequately supervised?						
<b>Charging fees for accommodation and services</b>						
Are the renting arrangements fair and transparent?						
Are workers provided with adequate information about payment made?						
Where appropriate, are renting arrangements and regulations clearly included in						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
workers' employment contracts?						
Are food and other services provided for free or reasonably priced, that is, not above the local market price?						
Is the payment in kind for accommodation and services prohibited?						
<b>Health and Safety on Site</b>						
Have health and safety management plans including electrical, mechanical, structural and food safety been designed and implemented?						
Has the accommodation manager a duty to report to the health authority specific diseases, food poisoning or casualties?						
Is there an adequate number of staff/workers trained in providing first aid?						
Has a specific and adequate fire safety management plan been designed						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
and implemented?						
Is guidance on alcohol, drug and HIV/AIDS and other health risk-related activities provided to workers?						
Do workers have an easy access to medical facilities and medical staff, including female doctors/nurses where appropriate?						
Have emergency plans on health and fire safety been prepared?						
Depending on circumstances, have specific emergency plans (earthquakes, floods, tornadoes) been prepared?						
<b>Security on workers' accommodation</b>						
Has a security plan including clear measures to protect workers against theft and attack been designed and implemented?						
Has a security plan including clear provisions on the use of force been designed and implemented?						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
Have the backgrounds of security staff been checked for previous crimes or abuses?						
Has the recruitment of security staff from both genders been considered?						
Have security staff received clear instruction about their duty and responsibility?						
Have security staff been adequately trained in dealing with domestic violence and the use of force?						
Are body searches only performed in exceptional circumstances by specifically trained security staff of both genders?						
Do security staff have a good understanding about the importance of respecting workers' rights and the rights of the surrounding communities and adopt appropriate conduct?						



Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
Do workers and communities have specific means to raise concerns about security arrangements and staff?						
<b>Workers' rights, rules, and regulations on workers' accommodation</b>						
Are limitations on workers' freedom of movement limited and justified?						
Is an adequate transport system to the surrounding communities provided?						
Is the practice of withholding workers' ID papers prohibited?						
Is freedom of association expressly respected?						
Are workers' religious, cultural, and social backgrounds respected?						
Are workers made aware of their rights and obligations and provided with a copy of the accommodations' internal rules, procedures, and sanction mechanisms in a language or						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
through a media they understand?						
Are house regulations non-discriminatory, fair, and reasonable?						
Are regulations on alcohol, tobacco, and third parties' access to the camp clear and communicated to workers?						
Is a fair and non-discriminatory procedure to implement disciplinary procedures, including the right for workers to defend themselves, set up?						
<b>Consultation and Grievance mechanism</b>						
Have mechanisms for workers' consultation been designed and implemented?						
Have workers subjected to disciplinary proceedings arising from conduct in the accommodation had access to a fair and transparent hearing with the possibility to appeal the decision?						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
Are there fair conflict resolution mechanisms in place?						
In cases where serious offences occur, are there mechanisms to ensure full cooperation with police authorities?						
<b>Management of community relations</b>						
Have community relation management plans addressing issues around community development, community needs, community health and safety and community social and cultural cohesion been designed and implemented?						
Do community relation management plans include the setting up of liaison mechanisms to allow a constant exchange of information and consultation of the surrounding communities?						
Is there a senior manager in charge of implementing the community						

Aspects	Responsible Parties	Satisfaction Levels	Remarks	Closure Date	Corrective actions/ plans	Evidence reviewed/ pictures
relation management plan?						
Is there a senior manager in charge of liaising with the surrounding communities?						
Are the impacts generated by workers' accommodation periodically reviewed, mitigated, or enhanced?						
Are community representatives provided with easy means to voice their opinions and lodge complaints?						

**Satisfaction Levels Rating Legend:**

Satisfaction Level Rating (On a Scale of 1-5)	Significance
1	Very Unsatisfied
2	Not Satisfied
3	Neutral
4	Somewhat Satisfied
5	Very Satisfied

## 21 APPENDIX U: Human Rights Risk Assessment

### 21.1 Introduction

The purpose of the Human Rights Risk Assessment (HRRRA) plan is to systematically identify, prevent, and mitigate potential human rights risks and impacts associated with HFE's operations and activities. The HRRRA plan is designed to align with the requirement and expectations of HFE's commitment towards respect of Human Rights and commitments.

### 21.2 Scope

The scope of the HRRRA plan encompasses the entire value chain of the business, including direct operations, supply chains, contractors, and other stakeholders. It aims to assess risks related to various human rights aspects, such as labour rights, health, and safety, non-discrimination, land and resource rights, and freedom of expression.

### 21.3 Objective

Conducting a comprehensive HRRRA is crucial for several reasons. Firstly, it will help HFE in fulfilling their responsibility to respect human rights as outlined in international standards and frameworks, including the United Nations Guiding Principles on Business and Human Rights<sup>21</sup>. By conducting the assessment, HFE can identify potential human adverse effects on individuals and communities.

Secondly, the HRRRA serves as a proactive measure to prevent and mitigate human rights abuses. By identifying risks early on, HFE can implement appropriate measures to prevent harm, such as establishing robust policies, implementing due diligence processes, and adopting effective grievance mechanisms. This helps HFE to avoid potential legal, reputational, and financial consequences associated with human rights violations.

### 21.4 Stakeholder Engagement

Engagement with relevant stakeholders is a critical component of the Human Rights Risk Assessment (HRRRA) Process. The stakeholder engagement for HRRRA shall be undertaken as per the requirement of established Stakeholder Engagement plan.

### 21.5 Scoping and Context Analysis

HFE will define the boundaries and scope of the Human Rights Risk Assessment (HRRRA). It is crucial to ensure a focused and effective assessment process. The following steps shall be used to define the boundaries and scope of HRRRA:

- **Identify Business Activities and Operations:** Identify the specific activities and operations of the business that will be included in the HRRRA. This may involve mapping the value chain and identifying the different stages, processes, and departments involved. Consider both core business activities and supporting functions
- **Map Supply Chains:** Identify and map the business's supply chains, including key suppliers, contractors, and subcontractors. This involves understanding the upstream and downstream connections, as well as the geographical reach of the supply chains. Consider the potential human rights risks and impacts associated with each stage of the supply chain.
- **Assess internal context:** Conduct a comprehensive analysis of the internal context, considering factors within the business's control. This includes the organizational structure, policies, procedures, codes of

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<sup>21</sup> The United Nations Guiding Principles on Business and Human Rights (UNGPs) are a set of guidelines for States and companies to prevent, address and remedy human rights abuses committed in business operations. They were proposed by UN Special Representative on business and human rights John Ruggie, and endorsed by the UN Human Rights Council in June 2011

conduct, training programs, and any existing human rights frameworks or initiatives. Evaluate how these internal factors influence human rights risks and impacts

- **Assess External Context:** Conduct an analysis of the external context, considering social, economic, political, and legal factors that may influence human rights risks and impacts. This includes analysing the socio-economic conditions in the locations where the business operates, local and national laws and regulations, and broader political and economic trends. Consider international human rights frameworks, such as the Universal Declaration of Human Rights and other relevant conventions, as a reference point.
- **Stakeholder Perspectives:** Incorporate the perspectives and concerns of relevant stakeholders, as identified through stakeholder engagement activities. Consider their perspectives when defining the boundaries and scope of the HRRRA, as they can provide valuable insights into potential human rights risks and impacts across different activities, operations, and supply chains.

## 21.6 Identify Human Rights

HFE will utilize a systematic approach to identify potential human rights risks and impacts associated with the business's activities. Assess risks will be done across the entire value chain, including direct operations, suppliers, contractors, and other stakeholders. Consider factors such as labour rights, health and safety, non-discrimination, land and resources rights, and freedom of expression.

Thus, to systematically identify potential human rights risk, following steps shall be undertaken:

- **Framework Development:** While developing the framework, HFE shall consider factors such as labour rights, health and safety, non-discrimination, land and resource rights, freedom of expression, privacy, and community relations.
- **Value Chain Mapping:** Map the entire value chain, including direct operations, suppliers, contractors, and other stakeholders involved. Identify the different stages, processes, and entities within the value chain to understand their potential human rights implications
- **Identify Potential Risks:** Assess each stage of the value chain and identify potential human rights risks and impacts. Consider the specific activities, practices, and interactions that could give rise to human rights concerns. This may involve analysing labour practices, health and safety protocols, diversity and inclusion policies, land acquisition processes, community engagement, and freedom of expression within the business and its supply chain
- **Evaluate Severity and Likelihood:** Assess the severity and likelihood of each identified risk. Consider the potential magnitude of harm, the vulnerability of affected individuals or communities, and the likelihood of the risk materializing. This evaluation will help prioritize risks and focus efforts on those with the greatest potential impact
- **Risk prioritization:** Prioritize risks based on their severity, likelihood, and potential impacts. Develop a risk matrix or scoring system to rank risks and determine the priority for mitigation efforts. Focus on risks that have high severity, high likelihood, and significant potential impacts on human rights

## 21.7 Impact Assessment

While undertaking a thorough HRRRA, HFE will consider various factors. Following steps shall be considered to analyse the potential impacts:

- **Magnitude of Harm:** Assess the potential magnitude of harm that could result from each identified human rights risks. Consider the severity of the harm, such as physical injury, loss of life, psychological trauma, or violation of basic rights. Evaluate the potential extent of the harm, both in terms of the number of individuals affected and the intensity or duration of the impact
- **Vulnerability of Affected Groups:** Evaluate the vulnerability of the individuals or groups that may be affected by the identified risks. Consider factors such as age, gender, ethnicity, socio-economic status,

disability, or other characteristics that may increase their susceptibility to harm. Recognize that some groups may be more vulnerable to human rights abuses and may require specific protection measures

- **Likelihood of Adverse Impacts:** Assess the likelihood of the identified human rights risks materializing and resulting in adverse impacts. Consider the probability of the risk occurring based on past incidents, industry trends, regulatory changes, or other relevant factors. Evaluate the effectiveness of existing risk controls or mitigation measures in reducing the likelihood of adverse impacts
- **Short-term and long-term consequences:** Analyse the potential short-term and long-term consequences of the identified human rights risks. Consider both immediate and delayed effects on individuals, communities, and stakeholders. This includes examining the social, economic, and environmental consequences, such as loss of income, displacement, health impacts, community unrest, or degradation of natural resources
- **Reputational Risks:** Evaluate the potential reputational risks associated with the identified human rights risks. Consider how adverse impacts may be perceived by stakeholders, including customers, investors, employees, and the public. Assess the potential damage to the business's reputation and brand value, as well as the implications for customer trust and loyalty
- **Legal Obligations:** Consider the legal obligations and requirements related to human rights, both internationally and in relevant jurisdictions. Evaluate the potential legal implications of non-compliance with human rights standards, including the risk of legal action, fines, or sanctions. Ensure alignment with international conventions, national laws, and industry-specific regulations
- **Financial Implications:** Assess the potential financial implications resulting from the identified human rights risks and impacts. Consider the direct and indirect costs associated with remediation efforts, legal fees, compensation, loss of contracts, increased insurance premiums, or negative impact on investment or financing opportunities. Quantify the potential financial consequences to understand the economic implications

## 21.8 Mitigation Measures

HFE will then prepare a comprehensive set of mitigation measures and action plans to address identified human rights risks and impacts. When developing a comprehensive set of mitigation measures and action plans to address identified human rights risks and impacts, consider the following steps:

- **Align with Standards and Legal Requirements:** Ensure that the mitigation measures align with the International Finance Corporation (IFC) Performance Standards, international human rights norms, and any relevant laws and regulations. This includes considering frameworks such as the United Nations Guiding Principles on Business and Human Rights. Aligning with these standards ensures that the measures are robust, credible, and in line with established best practices
- **Policy Changes and Enhancements:** Review existing policies and procedures and identify areas where improvements or updates are needed to address the identified human rights risks. Develop and implement specific policies that reflect the commitment to respect and protect human rights. These policies may cover areas such as labour rights, non-discrimination, health and safety, community engagement, supply chain management, and grievance mechanisms
- **Capacity Building:** Invest in capacity building programs to ensure that employees, suppliers, and other relevant stakeholders have the knowledge and skills to implement and uphold human rights standards. Conduct training sessions and workshops on human rights principles, policies, and practices. Provide specialized training on specific topics such as labour rights, diversity and inclusion, and responsible sourcing
- **Stakeholder Engagement:** Engage with relevant stakeholders, including employees, local communities, civil society organizations, and potentially affected groups. Collaborate with them to develop and implement mitigation measures that address their concerns and expectations. Establish mechanisms for ongoing dialogue and engagement to ensure that the measures effectively address the identified human rights risks

- **Due Diligence Processes:** Implement robust due diligence processes throughout the value chain to identify, prevent, and mitigate human rights risks. Conduct regular assessments of suppliers, contractors, and other business partners to ensure their compliance with human rights standards. Integrate human rights considerations into supplier contracts, procurement processes, and performance evaluations
- **Grievance Mechanisms:** Establish effective grievance mechanisms that provide accessible and confidential channels for individuals and communities to raise human rights concerns. Ensure that these mechanisms are responsive, impartial, and capable of providing remedies. Communicate the existence and functioning of grievance mechanisms to stakeholders, and provide guidance on how to access and use them
- **Assign Responsibilities and Set Targets:** Clearly assign responsibilities for the implementation of mitigation measures. Identify individuals or teams accountable for specific actions and outcomes. Set targets and key performance indicators (KPIs) to track progress and ensure accountability. Regularly review and report on the implementation status to ensure transparency and drive continuous improvement
- **Establish Timelines:** Establish clear timelines for the implementation of mitigation measures. Define realistic deadlines for each action and monitor progress accordingly. Ensure that timelines consider the complexity of the measures, available resources, and the need for appropriate consultation and collaboration with stakeholders
- **Monitor and Evaluate:** Implement a monitoring and evaluation framework to assess the effectiveness and impact of the mitigation measures. Regularly review the progress, measure performance against established KPIs, and gather feedback from stakeholders. Use the insights gained to make necessary adjustments, improve implementation, and address emerging human rights risks and impacts



## 22 APPENDIX V: Chance Find Procedure

A chance find procedure is a project-specific procedure that outlines the actions to be taken if previously unknown cultural heritage is encountered. The purpose of this document is to address the possibility of archaeological deposits becoming exposed during ground altering activities within the project area and to provide protocols to follow in the case of a chance archaeological find to ensure that archaeological sites are documented and protected as required.

The responsibility for preservation, maintenance and assessment of historical and cultural monuments rests with the Department of Archaeology, State Govt., and in specific cases, with the Archaeological Survey of India.

As per IFC Performance Standard 8, the client is responsible for siting and designing a project to avoid significant adverse impacts to cultural heritage. The environmental and social risks and impacts identification process should determine whether the proposed location of a project is in areas where cultural heritage is expected to be found, either during construction or operations.

In such case, as part of client's ESMS, the client will develop provisions for managing chance find through a chance find procedure which will be applied in the event that cultural heritage is subsequently discovered. The client will not disturb any chance find further until an assessment by competent professionals is made and actions consistent with the requirements of this Performance Standard are identified.

As per the Environment and Social Impact Assessment Report, excavation activities and earthworks during construction might result in chance find of cultural and historical artefacts of heritage value. Although the project area is not known for presence of cultural and historical artefacts having archaeological significance, a Chance Finds Procedure will be implemented by HFE.

Archaeological chance find incidents would be dealt with high priority by HFE. A procedure for reporting chance find during excavation and earthworks shall be developed by HFE. Following actions will be taken in case any chance find is encountered during construction works:

- The workers will be notified during orientation (prior to engagement) to report any chance find to the Contractors' Site Engineer/ Supervisor immediately.
- The Contractors' Site Engineer/ Supervisor will immediately halt all work in progress at the site.
- The Contractors' Site Engineer/ Supervisor shall ensure that the discovered site or area and immediate vicinity is cordoned off.
- The Contractors' Site Engineer/ Supervisor shall notify HFE Project Manager immediately who will in turn will inform the District administration and nearest office of Archaeological Survey of India (ASI).
- HFE and the contractor will facilitate the inspection by relevant authorities. The work will be restarted only after receiving go ahead from the relevant authority.
- HFE along with the contractor will, within a period of five working days, prepare and maintain a Chance-Find Report, recording:
  - Date and time of the discovery;
  - Location of the discovery;
  - Description of the discovery;
  - Estimated weight and dimensions;
  - Temporary protection measures implemented.
- Whenever chance finds of cultural or historical artefacts (moveable and immovable) are made the

Department of Archaeology of the state Government, the Local office (if any) of the Archaeological Survey of India will be informed.

- Should the continuation of work endanger the historical and cultural artefacts, the project work will be suspended until a solution is found for the preservation of these artefacts, or advice from the Archaeological Survey of India is obtained.
- Contractors, employees of the contractors and all project employees will be responsible for informing the Project Director immediately after discovery of the chance find, without any judgment on their own on the value of the chance find.
- The Project head would be responsible to inform the Department of Archaeology of the State Government, and the Archaeological Survey of India, local Office, within 5 Business Days of such discovery.
- The Project Head would request for a representative of the State Department of Archaeology, Government of State, and/or the Archaeological Survey of India, local Office in State to make a site inspection.
- Project Head will order cessation of work in the vicinity of the chance find until the visit of a representative (usually required within 48-72 hours of notification); and follow the advice by the State Department of Archaeology, and/or the Archaeological Survey of India on possible salvage or excavation (usually required within 48-72 hours of notification).
- Failure to report a chance find within 5 Business Days of discovery, is a punishable offence under the relevant Indian legislation.
- Similarly, (intentional) damage to a historical or cultural artefact is a punishable offence.

In such a case, there will be an automatic extension of time for the Project and the new Project completion date shall be arrived after mutual discussion