

ANNEX 6

HEALTH AND SAFETY GUIDELINES (INCLUDING RECOMMENDATIONS ON ENVIRONMENTAL PROTECTION)

1. GENERAL GUIDELINES AND REQUIREMENTS

1.1 ENVIRONMENTAL PROTECTION RECOMMENDATIONS

Set out below are general requirements to be adhered to by the Mini-Grid Operator to mitigate any adverse effect and impact of its operations and activities on the environment.

For every Mini-Grid Project, prior consideration and all efforts shall be made, at an early stage, to identify the environmental effect and impact of the proposed project.

Where the proposed project is likely to affect the environment because of its extent, nature or the location, an Environmental Impact Assessment (EIA) shall be undertaken as applicable.

1.2 HEALTH AND SAFETY GUIDELINES

Set out below are general requirements to be adhered to by the Mini-Grid Operator in order to mitigate any adverse effect and impact of its operations and activities on the health and safety of staff members, customers and other individuals.

The Mini-Grid Operator may decide, during the validity of the Permit, to maintain the usual insurance policies recommended for Mini-Grid operations. Not having the right insurance policies in place involves considerable risks for the operations of Mini-Grids.

2. SPECIFIC GUIDELINES AND REQUIREMENTS FOR TYPES OF EQUIPMENT

The table below provides specific requirements regarding the different types of equipment that are components in Mini-Grids

TYPE OF EQUIPMENT	PHASE IN PROJECT	RECOMMENDED LINK TO ENVIRONMENTAL PROTECTION	HEALTH AND SAFETY
Battery VRLA	Transport & Storage		- Wear protection gear: shoes, helmet, goggles and gloves.
	Installation		- Must only be installed by professional electricians.
	Operation	<ul style="list-style-type: none"> - Keep battery cells clean and clean with dry cloth. - Do not overcharge the batteries to avoid explosive hydrogen production. - Must be a safe working environment. - A comprehensive occupational safety program, including training and site orientation. - Competent persons to effectively respond to emergency events. - Keep a record of all occupational injuries and illnesses and divulge these records to NERC or body on demand for examination and analysis. - Functional risk management process. - Should have comprehensive insurance policy to adequately cover facilities, employees and third parties. 	
	Decommissioning & Disposal		<ul style="list-style-type: none"> - See installation and commissioning. - Batteries must be collected at State Government Collection point after end of lifetime.
Battery Lead-Acid Vented	Transport & Storage		- Wear protection gear: shoes, helmet, goggles and gloves.
	Installation	- Transport battery in upright position and/or transport acid in separate containers.	<ul style="list-style-type: none"> - Must only be installed by professional electricians. - Wear acid-proof protection apron. - During the filling, follow the manufacturers'

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		<ul style="list-style-type: none"> - Acid is a hazardous product: follow the transportation rules for hazardous products. 	<ul style="list-style-type: none"> recommendations. - Install only in rooms with adequate ventilation. - Avoid any electronics or electric equipment that can generate sparks in the same room.
	Operation	<ul style="list-style-type: none"> - Keep battery cells clean. - Do not overcharge the batteries to avoid explosive hydrogen production. - Must be a safe working environment. - A comprehensive occupational safety program, including training and site orientation. - Competent persons to effectively respond to emergency events. - Keep a record of all occupational injuries and illnesses and divulge these records to NERC or body on demand for examination and analysis. - Functional risk management process. 	
	Decommissioning & Disposal		<ul style="list-style-type: none"> - Batteries must be collected at state government collection point after end of lifetime. - Collect acid separately in appropriate canisters prepared for storage and transport
Lithium Battery	Installation & Operations		<ul style="list-style-type: none"> - Do not discharge completely and do not overcharge (risk of explosion). - Keep away from solar radiation.
Diesel Generator	Transport & Storage		<ul style="list-style-type: none"> - Use lifting equipment. - Fuel transport is dangerous and should follow the applicable transport Regulation.
	Installation		<ul style="list-style-type: none"> - Must only be installed by professional electricians.
	Operation	<ul style="list-style-type: none"> - Used oil and oil filters shall be collected and disposed of in an environmentally 	<ul style="list-style-type: none"> - Must only be operated by trained electricians. - Must be a safe working environment.

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		<p>friendly (safe) way.</p> <ul style="list-style-type: none"> - Select site to meet the following requirements: Noise Emission should be limited to an extent acceptable by the neighbours. 	<ul style="list-style-type: none"> - A comprehensive occupational safety program, including training and site orientation. - Testing and monitoring of air quality is strictly carried out where employees may be exposed to harmful substances, including worker respiratory protection and an emergency response plan. - Competent persons to effectively respond to emergency events. - Keep a record of all occupational injuries and illnesses and divulge these records to NERC or body on demand for examination and analysis. - Functional risk management process. Should have comprehensive insurance policy to adequately cover facilities, employees and third parties.
	Decommissioning & Disposal	<ul style="list-style-type: none"> - Used oil and oil filters shall be collected and disposed of in an environmentally friendly way. 	
Solar PV	Operation		<ul style="list-style-type: none"> - Wear safety gear. - Must be a safe working environment. - A comprehensive occupational safety program, including training and site orientation. - Competent persons to effectively respond to emergency events. - Keep a record of all occupational injuries and illnesses and divulge these records to NERC or body on demand for examination and analysis.

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			<ul style="list-style-type: none"> - Functional risk management process. - Should have comprehensive insurance policy to adequately cover facilities, employees and third parties.
	Decommissioning & Disposal	<ul style="list-style-type: none"> - For CdTe modules: Hazardous Waste must be collected and brought to a recycling centre. - Consult manufacturer's guidelines or where necessary the manufacturer 	
Wind Turbine < 50 kW	Transport & Storage		<ul style="list-style-type: none"> - Due to the weight of equipment, use appropriate lifting and installation equipment (e.g. crane).
	Installation	<p>Select site to meet the following requirements:</p> <ul style="list-style-type: none"> - Noise Emission should not be limited to an extent acceptable by the neighbours. <p>Shading shall not be more than acceptable by the neighbours</p>	<ul style="list-style-type: none"> - Due to the weight of equipment, use appropriate lifting and installation equipment (e.g. crane). - By selecting the site, take into consideration the ground characteristics for integrity of the turbine
	Operation	<ul style="list-style-type: none"> - Switch off wind turbine during main flying hours of bats. - Used oil and oil filters shall be collected and disposed of in an environmental friendly way. 	<ul style="list-style-type: none"> - Maintain moving parts regularly according to the requirements of the manufacturers. - Must be a safe working environment. - A comprehensive occupational safety program, including training and site orientation. - Competent persons to effectively respond to emergency events. - Keep a record of all occupational injuries and

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				<p>illnesses and divulge these records to NERC or body on demand for examination and analysis.</p> <ul style="list-style-type: none"> - Functional risk management process. - Should have comprehensive insurance policy to adequately cover facilities, employees and third parties.
	Decommissioning & Disposal		-	<ul style="list-style-type: none"> - Due to the weight of equipment, use appropriate lifting and installation equipment (e.g. crane).
Hydro < 50 kW	Transport & Storage			<ul style="list-style-type: none"> - Due to the weight of equipment, use appropriate lifting and installation equipment (e.g. crane).
	Installation		<ul style="list-style-type: none"> - Comply with the water rights and related legislation. 	<ul style="list-style-type: none"> - Moving parts of machinery must be designed and constructed in such a way as to prevent risks of contact which could lead to accidents or must, where risks persist, be fitted with guards or protective devices
	Decommissioning & Disposal		<ul style="list-style-type: none"> - Comply with the water rights and related legislation. - Used oil and oil filters shall be collected and disposed off in an environmental friendly way. 	See Transport & Storage
Biomass	Transport & Storage		<ul style="list-style-type: none"> - Sewage from biomass shall be kept from entering the ground water - Biogas shall be stored in a way to minimize losses to the atmosphere (reduce greenhouse gas emission) 	<ul style="list-style-type: none"> - Depending on the type of biomass, the biomass may carry the risk of fire. Therefore, it shall be stored in a safe fire protected place

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	Installation		<ul style="list-style-type: none"> - Due to the weight of equipment, use appropriate lifting and installation equipment (e.g. crane).
	Operation	<ul style="list-style-type: none"> - Use appropriate Fire protection. - Must be a safe working environment. - A comprehensive occupational safety program, including training and site orientation. - Competent persons to effectively respond to emergency events. - Keep a record of all occupational injuries and illnesses and divulge these records to NERC or body on demand for examination and analysis. - Functional risk management process. - Should have comprehensive insurance policy to adequately cover facilities, employees and third parties. 	
	Decommissioning & Disposal	<ul style="list-style-type: none"> - Any lubrication oil needs to be disposed off in an environmentally friendly manner - The flow of river as it has been before installation of the equipment has to be reestablished 	<p>Due to the weight of equipment, use appropriate lifting and installation equipment (e.g. crane).</p>
Inverters, charge controller and other electronic equipment	Installation		<p>Must only be installed by professional electricians.</p>
	Operation		<ul style="list-style-type: none"> - Must be a safe working environment. - A comprehensive occupational safety program, including training and site orientation. - Competent persons to effectively respond to emergency events. - Keep a record of all occupational injuries and illnesses and divulge these records to NERC or body on demand for examination and analysis.

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			<ul style="list-style-type: none"> - Functional risk management process. - Should have comprehensive insurance policy to adequately cover facilities, employees and third parties.
	Decommissioning & Disposal	<ul style="list-style-type: none"> - Must be disposed in an environmental friendly way. Waste must be collected and brought to a recycling centre. 	
Switch Gear and Distribution Box Conductors Transformers	Transport & Storage		<ul style="list-style-type: none"> - Due to the weight of equipment, use appropriate lifting and installation equipment (e.g. crane).
	Installation	<ul style="list-style-type: none"> - Select a site where the risk of flooding is low. - Use fire proved material. 	<ul style="list-style-type: none"> - Installation only by an electrician - Wear all applicable safety gear like safety shoes, safety gloves - Comply with the NERC Distribution Code.
	Operation		<ul style="list-style-type: none"> - Must be a safe working environment. - Wear appropriate safety gear - Must only be operated by trained electricians. - Comply with the NERC Distribution Code. - A comprehensive occupational safety program, including training and site orientation. - Competent persons to effectively respond to emergency events. - Keep a record of all occupational injuries and illnesses and divulge these records to NERC or body on demand for examination and analysis. - Functional risk management process.

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			<ul style="list-style-type: none"> - Should have comprehensive insurance policy to adequately cover facilities, employees and third parties.
	Decommissioning & Disposal	<ul style="list-style-type: none"> - The foundations must be removed and the place recover its original status. - Transformer may contain hazardous and polluting material which has to be brought to a collection point where it can be treated. 	<ul style="list-style-type: none"> - Due to the weight of equipment, use appropriate lifting and installation equipment (e.g. crane).

I, _____ (name), representative of

Mini-Grid Developer/Operator name: _____

Mini-Grid Developer/Operator address: _____

Company registration number: _____

am applying for a Permit and therefore warrant that I will comply with the above-mentioned environmental, health and safety guidelines.

In the event of any failure to comply with these guidelines, I am conscious that the competent authorities can impose fines according to the gravity of the infraction.

Date:

COMPANY REPRESENTATIVE