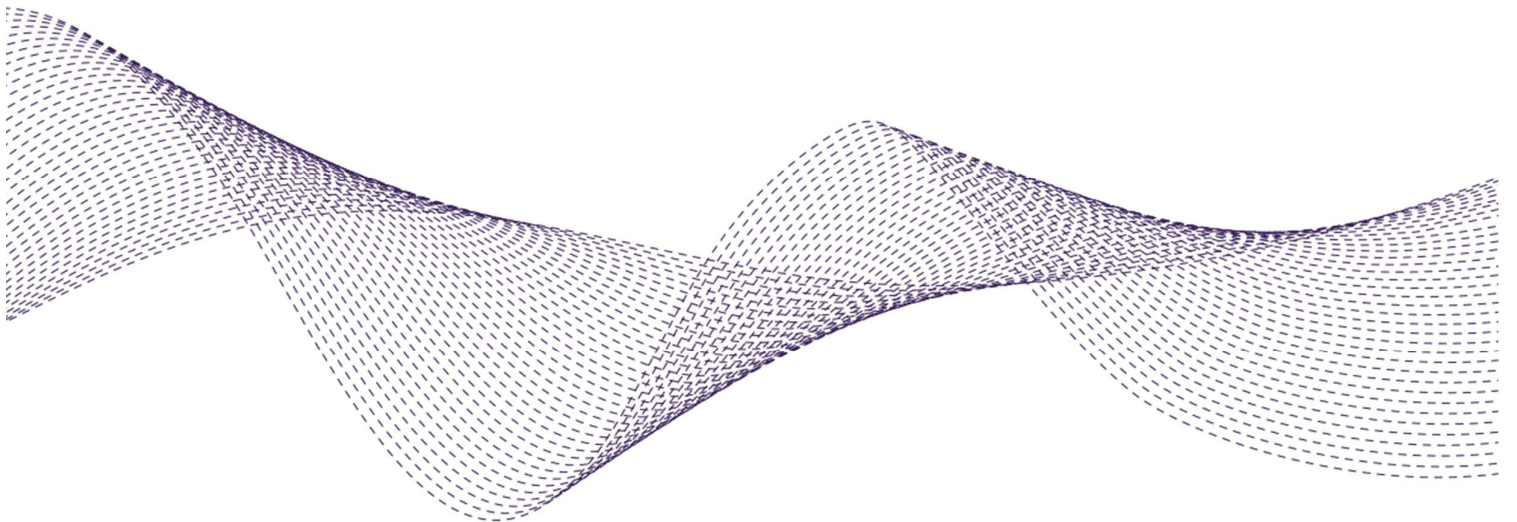


# SGRE General HSE Requirements for Contractors



0303

## Document revisions

#	Status	Changes	Author	Reviewed	Approved
01	F	Superseded	SGRE COG <del>QM&amp;HSE HSE</del> 2022-01-11	- -	- -
02	F	Superseded	SGRE COG <del>QM&amp;HSE HSE</del> 2022-08-15	- -	- -
03	F	Current release	SGRE COG QM&HSE HSE 2022-11-03	- -	- -

### Document status

I for Information  
CA Comment & Approval  
F Final issue

## DISCLAIMER

This document or embodiment of it in any media and the information contained in it are the property of Siemens Gamesa Renewable Energy. It is an unpublished work protected under the copyright laws free of any legal responsibility for errors or omissions. It is supplied in confidence and it must not be used without the express written consent of Siemens Gamesa Renewable Energy for any other purpose than that for which it is supplied. It must not be reproduced in whole or in part in any way (including reproduction as a derivation work) nor loaned to any third party. This document must be returned to Siemens Gamesa Renewable Energy on demand.

## Contents

<b>1</b>	<b>PURPOSE</b> .....	<b>7</b>
<b>2</b>	<b>SCOPE</b> .....	<b>7</b>
<b>2.1</b>	Contracting with Consortiums.....	<b>7</b>
<b>3</b>	<b>GENERAL HSE REQUIREMENTS</b> .....	<b>7</b>
<b>3.1</b>	Compliance with Laws / Regulations / SGRE Requirements .....	<b>7</b>
<b>3.2</b>	Contractor Qualification Rules .....	<b>8</b>
<b>3.3</b>	Contractor Qualification .....	<b>8</b>
<b>3.3.1</b>	<b>Basic Qualification</b> .....	<b>8</b>
<b>3.3.2</b>	Required Systems for Quality, Environmental Protection, Health and Safety .....	<b>9</b>
<b>3.4</b>	Qualification Audit.....	<b>9</b>
<b>3.5</b>	Service Approval.....	<b>9</b>
<b>3.6</b>	Change Management .....	<b>9</b>
<b>3.7</b>	Sub-Contractors.....	<b>10</b>
<b>3.8</b>	Standards & Documents.....	<b>10</b>
<b>3.9</b>	Roles and Responsibilities.....	<b>10</b>
<b>3.9.1</b>	Quality & HSE Contact at Contractor.....	<b>10</b>
<b>3.9.2</b>	Siemens Gamesa Contacts .....	<b>10</b>
<b>3.10</b>	Risk and Opportunities .....	<b>11</b>
<b>3.11</b>	Contractor Evaluation .....	<b>11</b>
<b>3.12</b>	Contractor HSE Performance Management.....	<b>11</b>
<b>3.12.1</b>	Safety Improvement Notice.....	<b>11</b>
<b>3.12.2</b>	Contractor HSE Performance .....	<b>11</b>
<b>3.12.3</b>	Right to Stop Work .....	<b>12</b>
<b>3.12.4</b>	Zero Tolerance .....	<b>12</b>
<b>3.12.5</b>	SGRE 10 Life Saving Rules.....	<b>12</b>
<b>3.13</b>	Safe Systems of Work .....	<b>13</b>
<b>3.14</b>	Communication.....	<b>13</b>
<b>3.14.1</b>	Language & Literacy Requirements.....	<b>13</b>
<b>3.14.2</b>	Use of Interpreters .....	<b>14</b>
<b>3.15</b>	Mobilization / Start Up of the Work.....	<b>14</b>
<b>3.16</b>	Emergency Response & Management.....	<b>15</b>

0303

<b>3.17</b>	Competency of Personnel .....	15
<b>3.18</b>	HSE Awareness.....	15
<b>3.19</b>	HSE Performance Measurement & Monitoring .....	16
<b>3.19.1</b>	SGRE Right to Inspect.....	16
<b>3.20</b>	Operational Risk Management & Control Measures .....	17
<b>3.20.1</b>	Setting to Work.....	17
<b>3.20.2</b>	Supervision & HSE Support.....	17
<b>3.20.3</b>	Use of PPE.....	18
<b>3.20.4</b>	Housekeeping .....	18
<b>3.20.5</b>	Work Equipment (Machinery, Appliance, Apparatus, Tool).....	18
<b>3.21</b>	HSE Key Performance Indicators, Reporting of Incidents.....	19
<b>3.22</b>	Incident Management and Investigation .....	20
<b>3.23</b>	Environmental Management.....	20
<b>3.24</b>	Data and records reporting .....	21
<b>4</b>	<b>SPECIFIC HSE REQUIREMENTS RELATING TO LIFTING OPERATIONS.....</b>	<b>22</b>
<b>4.1</b>	Planning .....	22
<b>4.1.1</b>	Personnel .....	23
<b>4.1.2</b>	Lift Supervision.....	23
<b>4.1.3</b>	Categorization of Lifting Operations.....	23
<b>4.2</b>	Deviation / Management of Change .....	24
<b>4.3</b>	Selection of Crane .....	24
<b>4.4</b>	Ground Conditions / Loading.....	24
<b>4.5</b>	Maximum Operational Wind Speeds for Conducting Lifting Operations .....	25
<b>4.6</b>	Examination, Inspection & Maintenance .....	25
<b>4.7</b>	Mobilization / Demobilization .....	25
<b>4.8</b>	Suspended loads .....	26
<b>4.9</b>	Exclusion zones.....	26
<b>4.10</b>	Overhead obstructions.....	26
<b>4.11</b>	Lift Supervision .....	26
<b>4.12</b>	Visibility.....	26
<b>4.13</b>	Communication.....	26
<b>4.14</b>	Suitability of Lifting Accessories and Hardware .....	27
<b>4.15</b>	Crane Operations .....	27
<b>4.16</b>	Safety Devices.....	28

0303

4.17	Lifting of Personnel .....	28
4.18	Offshore Cranes .....	28
4.19	Load control devices .....	29
4.20	Moving or Repositioning Cranes .....	29
<b>5</b>	<b>SPECIFIC HSE REQUIREMENTS RELATING TO CONTROL OF HAZARDOUS ENERGIES</b>	<b>29</b>
5.1	Control of Hazardous Energies Program.....	29
5.2	Electrical Work Equipment & Arc Flash Clothing, PPE .....	30
5.3	Lock Out / Tag Out (LOTO) Devices & Hardware .....	31
5.4	High Voltage .....	32
5.4.1	Live Working .....	32
5.4.2	Working in the Vicinity of Live Parts.....	32
<b>6</b>	<b>SPECIFIC HSE REQUIREMENTS RELATING TO TRANSPORTATION OF WTG COMPONENTS.....</b>	<b>33</b>
6.1	Blade Tip Protection .....	33
6.2	Inspection Program for Land Transport.....	33
6.3	Lift Plans .....	33
6.4	Mobile Cranes.....	33
6.5	Land Transport Load Securement Plan.....	33
6.6	Route Surveys / Study .....	34
6.7	Escorted Loads.....	34
6.7.1	Escort Vehicles & Escort Personnel .....	34
6.8	Adhoc Transports .....	35
6.9	Deliveries, Offloading & Laydown.....	35
<b>7</b>	<b>SPECIFIC HSE REQUIREMENTS RELATING TO WORKING AT HEIGHT AND THE PREVENTION OF DROPPED OBJECTS .....</b>	<b>36</b>
7.1	Working at Height - Scaffolding & Temporary Work Platforms .....	37
7.2	Working at Height - Floor openings, voids, and fragile surfaces .....	37
7.3	Working at Height - Staircases .....	37
7.4	Working at Height – Working Platforms, Stepladders and Portable Ladders.....	38
7.5	Working at Height – Mobile Elevating Work Platforms (MEWP) .....	38
7.6	Dropped Objects.....	39
7.6.1	Dropped Object Prevention Scheme or Program .....	39
7.6.2	Securing Objects Against Dropping .....	39

0303

<b>7.6.3</b>	<b>Tool Tethers &amp; Attachment Anchors .....</b>	<b>40</b>
<b>7.6.4</b>	<b>Unattended Work Areas &amp; Housekeeping .....</b>	<b>40</b>
<b>8</b>	<b>ABBREVIATIONS AND DEFINITIONS.....</b>	<b>40</b>
<b>9</b>	<b>MAJOR CHANGES COMPARED TO LAST REVISION .....</b>	<b>41</b>

0303

## 1 PURPOSE

The purpose of this document is to establish the high level general HSE requirements for Contractors (Vendors) and their Sub-Contractors who perform work for and on behalf of Siemens Gamesa Renewable Energy, (hereafter referred as SGRE). SGRE is committed to caring for our people, our community, and our environment. Our HSE Policies set the foundation for this commitment. Everyone who works for or on behalf of SGRE must recognize and align with this commitment. This document forms an integral part of the Contract or Framework agreement, establishing the HSE requirements for working onsite and should therefore be read carefully and understood by the Contractor as it is a legally binding and enforceable part of the Contract.

## 2 SCOPE

This document applies to and shall be made a part of all contractual agreements between any Contractor and their Sub-Contractors performing work defined as critical by SGRE at a location or facility under control of SGRE. The criticality is based upon the SGRE ESN Code covering the scope of service to be executed by the Contractor. It is the Contractor's responsibility to ensure that the scope of work stated in the contract is carried in a controlled manner under a safe system of work (SSoW) which complies with local legal requirements in the country where the work is being performed as well as the SGRE requirements for the activities and those stated in this document. In case of conflict between the SGRE requirements and the local legal requirements, the stricter requirement shall apply.

### 2.1 Contracting with Consortiums

An agreement with consortium is a Contract between SGRE and several contractors with clearly identified roles (as agreed with SGRE) of Lead contractor and Co-contractors where the Lead contractor is defined as the representative of the Consortium. Where SGRE enter into a Contract with a Consortium, the Lead Contractor shall have full responsibility for ensuring that these HSE requirements are understood and implemented by all Co-contractors and their Sub-Contractors.

## 3 GENERAL HSE REQUIREMENTS

### 3.1 Compliance with Laws / Regulations / SGRE Requirements

The Contractor shall comply with all applicable Health, Safety and Environmental (HSE) laws and regulations, which are applicable to the worksite. The Contractor shall comply at all times with the requirements as set forth by SGRE in this document and in any SGRE issued HSE Plans or Standard Operating Procedures (SOP's). These requirements are intended to supplement any known or ought to be known laws and regulations applicable at the worksite and in case of conflict between the SGRE requirements and the local legal requirements, the stricter requirement shall apply.

Unsafe Acts or Conditions which have the potential to harm people will not be tolerated by SGRE.

The Contractor shall appoint a competent person as its representative for environmental, health and safety ("Contractor HSE Representative"). The Contractor HSE Representative shall ensure the proper implementation of all contractual and local legal HSE requirements during the works. SGRE reserves the right to reject the appointed "Contractor HSE Representative" if SGRE reasonably considers that appointed person is not sufficiently competent to act as the Contractor HSE Representative. The decision will be made by the Location, Site or Project HSE Lead supporting the Buyer.

SGRE define competence with regard to the Contractor HSE Representative as a combination of skill, knowledge, training & experience in relation to HSE matters and the manner in which the scope of works

0303

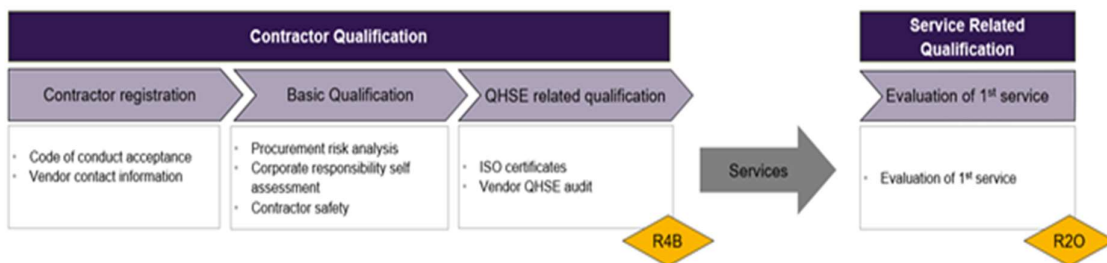
will be executed. It is expected that qualification held by the Contractor HSE representative shall be as a minimum:

- An internationally recognized qualification such as a NEBOSH International Diploma or a degree level HSE vocational qualification which originated in one country that has now been recognized either formally or informally in another country as providing a good standard of education in a particular subject, in this case health and safety: or
- A qualification that has been adopted by the Contractor which may operate in different countries as a company standard based on International Labor Organizations “Guidelines on Occupational Safety and Health Management Systems” (ILO-OSH 2001).

### 3.2 Contractor Qualification Rules

As a prerequisite for delivering a defined critical service to SGRE, the Contractor will go through SGRE qualification and service approval process. The qualification includes the Contractors ability to setup a robust service setup including proposed Sub-Contractors. For the activities under Contractor’s scope its Sub-Contractors performance will be considered and contribute to the Contractor’s HSE performance indicators for the qualifications process and any following continuous evaluation or monitoring by SGRE. The service is only to be provided to SGRE by the Contractor and associated Sub-Contractors upon successful completion of the qualification process and as authorized in writing by SGRE.

There are 2 phases in the process of qualification of Contractors of critical services. The first phase, Contractor Qualification is necessary to be able to nominate a Contractor to a critical service. After successful completion of the contractor qualification activities the contractor is granted the status R4B “Ready for Business” in the Siemens Gamesa systems. The following phase, the Service qualification is used to validate the specific service the contractor is nominated to. After successful completion of the service qualification activities the contractor is granted the status R2O “Ready to Order” in the Siemens Gamesa systems.



### 3.3 Contractor Qualification

All Contractors must comply with the following requirements for qualification before a Service Qualification.

#### 3.3.1 Basic Qualification

The Basic Qualification is a company-wide, mandatory, and standardized contractor related qualification which serves as first release level for a potential Siemens Gamesa Contractor. It is initiated by Siemens Gamesa Commodity Management and forms the basis for additional Contractor and service-related qualification requirements.



0303

### 3.3.2 Required Systems for Quality, Environmental Protection, Health and Safety

- ISO 9001: Siemens Gamesa’s goal for all contractors is to demonstrate compliance to ISO 9001. Unless otherwise specified, conformity must be demonstrated by third party certification.
- ISO 14001: To ensure the environmental policy application throughout its supply chain, Siemens Gamesa expects from its contractors an active engagement in environmental concerns. This includes the establishment, and adherence to, an environmental management as per ISO 14001, or equivalent.
- ISO 45001: Is a system for managing health and safety and promotes safe work environments. Siemens Gamesa expects from its contractors to have implemented a system to consistently identify and control risks to health and safety, reduce potential accidents, support enforcement, and improve overall performance.

Applicability:

Certificate / management system	Critical Services
ISO 9001	Obligatory
ISO 14001	Obligatory
ISO 45001 / equivalent	Obligatory

\* Other equivalent management system as approved by SGRE is also valid

In case of modifications of one of the above-mentioned certifications, the contractor shall immediately notify Siemens Gamesa. Modifications include, but are not limited to, the following situations:

1. Any action by either the contractor or it’s certifier that limits or alters the condition or duration of the contractors certification.
2. Renewal, upgrade, suspension, probation, expiration and termination of the mentioned certifications.

### 3.4 Qualification Audit

During contractor selection and qualification, Siemens Gamesa may perform various audits to confirm contractor capability, beyond the certification level. Contractors that initially do not score acceptably are required to develop action plans and timelines to correct any deficiencies and then request a re-audit to verify implementation of these actions.

### 3.5 Service Approval

The purpose of Service Qualification is:

- To make sure that the process is well prepared and capable to meet the Siemens Gamesa requirements and specifications
- To ensure stability in the process that allows for delivery of consistent QHSE performance during the service execution.
- To provide objective facts and evidences that demonstrate the above-mentioned capability and robustness of the process

### 3.6 Change Management

Contractors shall submit a written request for a change to the service delivery setup and obtain Siemens Gamesa approval prior to implementing the change e.g.

0303

- Change to any of the Subcontractors (removal of or introduction of new Sub-Contractors not previously identified)
- Change of location where the service will be provided from.

In determining the impact of any change and the resultant risk, SGRE reserves the right to require the Contractor to undertake a re-qualification to maintain a “qualified” status.

### 3.7 Sub-Contractors

Sub-contractors have a tremendous impact on the performance quality of the service. Their influence is so profound that it is critical for each of Siemens Gamesa’s contractors to have a contractor management system in place.

The contractor shall have a procedure within its management system to guarantee acceptable and stable QHSE performance from its sub-contractors.

Contractor shall implement for its sub-contractor a reliable contractor qualification and service release process. It must be made sure that the sub-contractors of critical services have satisfactorily passed this process before sub-contracting. Contractor shall use only released service from a qualified sub-contractor, according to the Contractors own qualification and release processes. In case of changes to sub-contractors, Siemens Gamesa is to be notified.

The contractor management system shall also include a function that tracks and reports on their supply base performance. Contractors shall be able to demonstrate that they have a system implemented to manage their sub-contractor issues through documented corrective actions and verification activities.

Siemens Gamesa will audit and inspect the critical services of the sub-contractors when it deems necessary to ensure that proper controls are in place throughout the entire supply chain.

### 3.8 Standards & Documents

The following standards and documents shall form an integral part of this Annex in their respectively valid version unless otherwise explicitly agreed below:

- ISO 9001 Quality Management Systems
- ISO 14001 Environmental Management System
- ISO 45001 Occupational Health and Safety Management System
- Purchase Specifications
- Green House Gas emissions, including Scope 3
- Globally Harmonized System of Classification and Labeling of Chemicals (GHS) developed by the United Nations.

### 3.9 Roles and Responsibilities

#### 3.9.1 Quality & HSE Contact at Contractor

Contractor shall notify Siemens Gamesa in writing of a central contact person(s) responsible for coordinating the quality management, quality assurance and HSE measures. Any change in the contact person(s) shall be promptly notified in writing.

The Contractor shall ensure that the contact person is able to communicate in English and that all official communication to Siemens Gamesa is in English.

#### 3.9.2 Siemens Gamesa Contacts

Communication channels with Siemens Gamesa are defined as follows:

0303

#### Procurement

- Contract negotiation
- Financial issues regarding Cost of Non-quality
- Everything regarding the supply conditions, including the re-negotiation due to changes.
- Responsible for issuing purchase orders

#### HSE

- Point of contact for all HSE requirements as stipulated within this document and as may be provided with respect to the local work environment

### **3.10 Risk and Opportunities**

When planning for the integrated management system, the contractor shall include actions to address risks and opportunities. Actions to address risks can include avoiding risk, taking risk to pursue an opportunity, eliminate the risk source, changing the likelihood or consequences, sharing the risk, or retaining risk by informed decisions.

Opportunities can lead to the adoption of new practices, opening new markets, addressing new customers, building partnerships and other desirable and viable possibilities to address the organization's or its customers' needs.

### **3.11 Contractor Evaluation**

To monitor the QHSE Profile of the supply situation, Siemens Gamesa monitors continuously every external Contractor in terms of QHSE performance indicators. In addition, Siemens Gamesa has established contractor evaluation covering the most significant part of the Supply Chain. The list of contractors to be evaluated is based on several criteria like size and importance of the services as well as the contractors financial turnover with Siemens Gamesa. A contractor can be included upon its specific request.

### **3.12 Contractor HSE Performance Management**

#### **3.12.1 Safety Improvement Notice**

If, in the reasonable opinion of the SGRE, the Contractor is judged to have failed or is failing to meet health and safety obligations as set out in Law or these HSE Requirements then SGRE will be entitled to Stop Work and to issue a Safety Improvement Notice (SIN). On receipt of the safety improvement notice issued by SGRE, the Contractor shall as soon as is reasonably practicable but not later than 7 days after receipt of the safety improvement notice provide SGRE with details of the steps taken to address the issues raised in the safety improvement notice. SGRE are entitled to audit the actions taken by the Contractor to determine any additional actions that the Contractor needs to take or whether issues stated in the safety improvement notice has been satisfactorily rectified.

#### **3.12.2 Contractor HSE Performance**

Where the HSE performance of the Contractor is judged by SGRE to fall below the standards required to ensure safety of personnel or control of risks either through analysis of incident reporting or inspections carried out by SGRE, then SGRE shall agree a written action plan with the Contractor in line with the above. If the Contractor is judged by SGRE to consistently fail to meet the expected HSE

0303

performance as specified in these HSE Requirements, SGRE HSE Plan / SOP's or is not able to rectify and correct violations to the satisfaction of SGRE, then SGRE reserves the right to initiate requalification of the Contractor. This could result in the Contractor not being awarded any further work with SGRE.

Where the Contractors HSE performance is at or above the standard expected by SGRE e.g., proactive incident reporting, effective control of risk, positive attitude of personnel or as may be defined locally by SGRE) and that this standard is maintained then SGRE shall work with the Contractor to provide access to safety training and other local opportunities to the benefit of the Contractor and its employees from an HSE perspective. The period to which this standard must be achieved and maintained before SGRE will implement such recognition and reward measures will be defined by SGRE locally prior to the execution of the works.

### **3.12.3 Right to Stop Work**

SGRE shall have the right to stop commencement of work or to suspend any work in progress if the equipment, machinery, personnel, or work conditions are considered at SGRE's discretion to be unsafe or not to be in accordance with any applicable rules, local legal requirements, regulations, or procedures as noted in these General HSE Requirements.

If SGRE considers the Contractor is not adequately in control of specific HSE risks e.g., working at height, lifting operations, hazardous energies, in breach of a life saving rule etc. (see section 3.12.5), then SGRE reserves the right to execute a local Stop work on any of the Contractor's work activities for any duration that SGRE may deem necessary and where judged reasonable to formalize this within a Safety Improvement Notice. During this local Stop Work, the Contractor will be required to develop and agree an action plan with SGRE and demonstrate that risks are mitigated to allow the work activities to be recommence safely.

Suspension of any aspect of the work by SGRE shall be at the Contractor's expense until the Contractor has satisfactorily rectified such defects and unsafe conditions. Work will not be allowed to recommence until authorized by SGRE.

Failure to address a Safety Improvement Notice within the agreed timescale will constitute a material breach in accordance with the conditions of the contract.

### **3.12.4 Zero Tolerance**

SGRE reserves the right to stop work and to suspend / exclude or ban from any SGRE site any individual(s) for a violation of any of the SGRE 10 Life Saving Rules (LSR), SGRE or local legal requirements. The suspension, exclusion or ban will also apply to situations where verbal or written instructions issued by the Contractor have been determined by SGRE to be in conflict with any of the LSR, SGRE or local Legal HSE requirements. The suspension, exclusion or ban is valid for a period as determined by SGRE based on the findings of any investigation including an assessment on the extent of culpability of any individual(s), and actions to be undertaken by the Contractor to correct the unwanted behavior. Any Stop work initiated by SGRE in accordance with above will be at the Contractors cost.

### **3.12.5 SGRE 10 Life Saving Rules**

SGRE has adopted 10 Life Saving Rules that are associated with activities where noncompliance has a high likelihood of leading to a fatalities or serious injury. The rules in brief are:

- Driving Safely: "Wear your seat belt or harness; do not use a hand-held or hands-free mobile phone while operating a vehicle or whilst stopped at traffic lights; do not exceed speed limits"

0303

- Alcohol & Drugs: “Do not consume alcohol or drugs before and while working or driving”
- Suspended Loads: “Maintain a safe distance from any suspended load and never stand or walk underneath a suspended load”
- Use of PPE & Tools: “Use the right personal protective equipment and tools that are required for the task you want to do”
- Working at Heights: “Protect yourself when working at height”
- Permit to Work: “When required, always have a valid work permit”
- Energy Isolation: “Verify Zero Energy state before work begins. Use lockout/tagout (LOTO) procedures”
- Safety Guards: “Do not override or interfere with any safety guards or equipment”
- Movement of Equipment or Vehicles: “Position yourself in a safe zone when equipment or vehicles are being moved or energized equipment is handled”
- Dropped Objects: “Secure all tools and equipment, place barriers and wear head protection when mandated”

The Contractor shall ensure that:

- All personnel are familiar with and work according to SGRE Life Saving Rules and any other HSE requirements as identified by SGRE.
- All personnel engaged in the work, including Sub-Contractors, have been informed about the Life Saving Rules and the consequences of not following these.

### 3.13 Safe Systems of Work

The Contractor shall provide SGRE with the Safe Systems of Work (SSOW) covering the full scope of works to be executed for review and acceptance at least 72hrs or as otherwise agreed with SGRE before execution of any task or work package. When made available the Contractor shall refer to the SGRE issued HSE Plan or Location Specific SOP’s for further specific requirements. The Contractor shall ensure all Contractor and Sub-Contractor personnel are familiar with the content of the SSOW including any SGRE site specific requirements and shall ensure that any relevant SSOW is maintained and readily available for reference to by personnel at the worksite.

SGRE reserve the right to make amendments to its HSE Plan or its SOP’s as required and will provide the Contractor with details of any changes made.

### 3.14 Communication

The Contractor shall at all times ensure efficient and effective HSE communication and consultation with all personnel involved in the work. This includes but is not limited to any mobilization, toolbox talk, pre-task briefings prior to the start of the work or work activities, worksite HSE meetings on a regular basis with all parties involved including Sub-Contractors, SGRE and third parties. In addition, the Contractor shall actively participate where requested in any HSE meetings facilitated by SGRE.

#### 3.14.1 Language & Literacy Requirements

Changing conditions in the work environment can require quick reactions from employees to verbal, visual and other forms of communication. Poor literacy creates a particularly high risk to health and safety especially where the Contractor may be responsible for the health and safety of others that may be affected their work, such as other contractors on site, associated personnel from SGRE and members of the public. Literacy is defined as the ability to read, write, speak, and listen in a way that ensures

0303

effective communication & understanding. Therefore, the Contractor shall ensure that all personnel are literate in their first language.

Personnel in a Safety Critical Role or operating Safety Critical Equipment must be literate to the extent they are able to read and understand any documentation upon which the safety of that role or associated work activities are dependent. SGRE defines a Safety Critical Role (in respect of language skills) as one where insufficient literacy of an individual may compromise their ability to manage, supervise or use Safety Critical Equipment to undertake a task safely, thereby posing a significant risk to the health and safety of others. Safety Critical Equipment is defined as equipment and or systems which failure could cause or contribute to an incident with severe or catastrophic consequences, or of which its purpose is to prevent or limit the effect of such incidents.

The Contractor shall consider reasonable means of reducing the risk arising from literacy / language skills and shall reflect this in a risk assessment. Established measures to reduce include:

- Using a professional translator or translation service to provide translated documents and safety information, so that the Contractor can be confident any technical terms have been properly translated
- Warning and other instructional signage must be simple, incorporate recognizable pictograms, safety signs and symbols
- Using bilingual employees, with sufficient language & literacy skills, to act as interpreters for colleagues
- Providing appropriate language skills training for employees and workers when deemed necessary
- Allowing sufficient time for site induction and training and to test workers have correctly understood what has been said
- Check that workers can effectively communicate any concerns they have about health and safety on site, and they know what action to take in an emergency on site.
- Providing Supervision that:
  - is able to speak and read to a proficient standard and communicate with the workers in their own language.
  - must have the technical knowledge and understanding of the terminology used
  - is dedicated in the role of a Supervisor and stay with the workers or team they are supervising at all time
  - check that health and safety information has been understood.

Note: The ratio of Supervisors to workers on site will be determined by a Contractor risk assessment with final agreement on the proposals sought from SGRE prior to mobilization.

### **3.14.2 Use of Interpreters**

Where the Contractor proposes to use interpreters to support communication arrangements, they shall be demonstrated to be competent professionals, fluent in the languages required for the workers.

Whomever is acting as an interpreter must stay with the workers at all times in order to deliver inductions, instructions, and act as liaison with the other people who may be on site. The Contractor must ensure arrangements are in place if the interpreter is called upon to work elsewhere, not available for any reason or becomes incapacitated due to illness or injury.

### **3.15 Mobilization / Start Up of the Work**

The Contractor shall, prior to commencement of the work, inform all personnel via the Contractors induction process about all (legislative, SGRE, Contractor) HSE regulations, rules, requirements, instructions or other such HSE relevant information related to the execution of the contracted work.

0303

Such regulations, rules, requirements, instructions, and information may be subject to review from time to time by SGRE. The Contractor shall communicate these in such a manner that all personnel can easily understand it. The Contractors shall ensure that any new personnel are informed in an equal manner.

Before commencement of the work the Contractor shall ensure all personnel involved in the work receive a Mobilization Briefing detailing SGRE expectations in performance of the work and risks associated with the work. The Contractor shall ensure that any new personnel are informed in an equal manner. The Contractor shall ensure that a system is implemented to record that its personnel have received an induction / mobilization briefing.

### 3.16 Emergency Response & Management

Contingent on the Contractors scope of work, the location(s) where the work will be executed and identified risks, the Contractor shall identify and agree with SGRE, suitable emergency response and management arrangements. This shall include the requirement for the Contractor to:

- participate in any emergency drills arranged by SGRE throughout the course of the works or to
- conduct drills on a regular basis as agreed with SGRE which are reflective of the foreseeable emergency scenarios the Contractor and its Sub-Contractors may be required to respond to.

Where the Contractor is contractually responsible for its own emergency response and management arrangements including provision of first aid, the Contractor shall ensure that assigned personnel are trained and qualified to perform these tasks. The number of Personnel assigned to provide first aid vs the size of the workforce shall be defined by Risk Assessment.

### 3.17 Competency of Personnel

The Contractor shall ensure that its personnel are fully trained, certified, and competent to carry out the task of operating all machinery, equipment, and tools, complying with local legal and SGRE training requirements where required. Certificates of competency shall be provided where applicable and whenever requested by an SGRE representative. The Contractor shall provide an adequate level of technical and HSE related training conducted by a recognized training institution for all relevant personnel in connection with the work. All Contractor supervisory personnel shall attend relevant HSE training including, but not limited to, in hazard identification and risk assessment. The Contractor shall ensure that all Contractor and Subcontractor personnel engaged in the work are fit to work and possess the required competence required to perform the work safely. Fitness to work refers to the process of assuring that an employee can complete a task safely without presenting a risk to themselves, their colleagues, or a third party.

If specific location and / or work-related trainings are needed, these will be agreed with SGRE prior to mobilization. This trainings / fitness to work have to be completed prior to the start of work. In addition, some of the training identified might include SGRE internal trainings and / or external training.

### 3.18 HSE Awareness

The Contractor shall be responsible for maintaining the HSE awareness among its personnel and Subcontractor personnel, including but not limited to arranging safety induction, toolbox meetings, regular HSE meetings and emergency exercises and drills. Record the findings of hazard identification and risk assessments including pre-task planning by the Contractor and communicated to Contractor and Subcontractor personnel. Copies of minutes of any Contractor led safety meetings shall be

0303

submitted to SGRE whenever requested. Whenever Contractors are asked to participate in SGRE toolbox meetings, safety inductions, regular HSE meetings etc. it is expected that the Contractor take part in those.

SGRE promote the “Safety is my choice” mindset - Before starting any work, the following must be clearly understood by each individual working under the scope of SGRE contract.

- You shall take responsibility for your own safety and the safety of others
- Do not perform work activities unless you are competent and approved
- Do not perform work activities unless you are physically and mentally fit
- Do not start any work before you have read and understood the Safe System of Work
- Respect all prohibition and warning signs placed at the project site
- Ensure the correct tools & equipment are available and in safe condition for use

### **3.19 HSE Performance Measurement & Monitoring**

The Contractor shall prepare and propose a schedule of HSE inspections and audits with the intention of demonstrating to SGRE that the Contractor is able to self-assess and monitor its compliance with legislative requirements, requirements of this document, the established SGRE HSE Plan / SOP's, the Contractor's own HSE plan and other HSE documentation as may be relevant. Inspections and audits carried out by the Contractor must be recorded and signed and made available to SGRE on request.

#### **3.19.1 SGRE Right to Inspect**

SGRE reserves the right to carry out its own QHSE inspections and or audits to ensure the Contractor and their Tier 2 Contractors compliance to SGRE QHSE requirements throughout the execution of the Contract. As a result of any inspection or audit, SGRE may require specific QHSE improvements to be made. The SGRE approach to inspections / audits is based on the following:

- On an ad-hoc basis and without notice, to conduct HSE inspections at any SGRE site (factory/ construction site/ etc.) during the performance of the contractor incl. Tier 2 contractors
- The right to conduct HSE inspections at external facilities where services for or with SGRE employees are being carried out (e.g., are training facilities or other such site) with due notice e.g., 3 days notice prior to the inspection being conducted
- Formal Integrated Management System audit at a Contractor facility according to current ISO standards with prior notice.

The Contractor shall provide full cooperation and access will be granted to any SGRE HSE or Supplier Quality Engineer to all areas involved in the production or delivery of Siemens Gamesa components, materials, or services. SGRE may be accompanied by its clients and / or third-party consultants hired by SGRE clients in these inspections and or audits.

The Contractor shall note that failure of an audit (IMS based or local HSE inspections) is considered a material breach in accordance with the terms and conditions of the contract. As such, SGRE may apply financial and other penalties as set out in the Contract terms and conditions which can ultimately include termination of business with the Contractor. Where SGRE decides to replace the Contractor with an alternative Contractor due to safety breaches, then the cost of sourcing and engaging the replacement Contractor will be at the cost of the original contractor.



0303

### 3.20 Operational Risk Management & Control Measures

The Contractor must ensure that HSE hazards are identified, assessed and controls put in place to manage the risk of all activities, to secure safe access to and protection of the worksite, personnel including visitors or other 3<sup>rd</sup> parties affected by Contractor activities and the property of SGRE.

Risk assessments must be fit for purpose, and risk decisions must be documented and monitored to ensure risks remain managed. Prior to commencement of the Contracted works, the Contractor shall draw up a written action plan focusing on the significant risks to be managed during execution of the works. The identification of these significant risks will be decided by the Contractor but can be based on their direct experience and knowledge or with the support of SGRE. Nevertheless, the action plan shall be agreed with SGRE and shall clearly identify the risk areas including mitigation measures to be undertaken and a proposal on how performance in managing these risks will be measured.

SGRE always aim to reduce to and maintain the risk level to as low as practicable. A risk is considered to be tolerable when it has been reduced to a level acceptable to SGRE with any necessary residual risk action plan agreed to manage and further control that risk.

Risks associated with temporary and permanent changes to design, operations, processes, assets, plant, and materials must be assessed, documented, and managed before the change occurs. All changes need to be communicated to and aligned with SGRE.

#### 3.20.1 Setting to Work

Contractor must implement a systemic approach to ensure an effective “Setting to Work” process which shall encompass the following elements:

- Identification and understanding of specific tasks / work scope to be executed
- The assessment of risk within specific tasks / work scope and the identification of control measures to reduce risk
- Identify & allocate adequate competent resource, tools, and other work equipment
- Undertaking a pre-job brief with personnel to ensure an opportunity to understand & discuss / review the safe system of work. Any issues raised must be addressed and reflected in the safe system of work
- Arrangements for confirming HSE controls are in place prior to work tasks commencing
- Ongoing monitoring of the HSE controls is carried out whilst the work tasks are being performed
- Completion of the task / work scope and handover
- Post task review & feedback with the personnel to capture any learnings / improvements.

#### 3.20.2 Supervision & HSE Support

Contractor must risk assess and propose a ratio of site-based Supervisors to workers for agreement with SGRE prior to any work activities commencing. Contractor must ensure any supervisors identified are competent relating to the work activities to be supervised. In addition, the risk assessment shall identify the number of competent HSE personnel who will provide site based or remote support to the Contractor (to be agreed with SGRE in advance of the start of work.)

SGRE reserves the right to remove Contractor’s personnel from the site if their competency or performance does not comply with or meet the standard required as identified in SGRE requirements.

Competency of site-based Supervisors shall be a combination of skill, knowledge, training, and experience relating to the specific task in question or the range of tasks being Supervised. SGRE expect a Supervisor to be:

- Directly employed by the Contractor on a full-time basis.
- Have at least two consecutive years supervisory or managerial responsibility for the standard of work to which they will have responsibility to Supervise.

0303

- Satisfy the technical training and/or experience requirements.
- Understand the relevant local legal requirements, applicable standards and the Codes of Practice and guidance documents relevant to the range of work undertaken.
- Understand the inspection, testing, verification, certification, and reporting procedures for the range of work undertaken.
- Have the necessary soft skills to support a Supervisory role incl. open communication, set a positive example, provides positive reinforcement & coaching of others, foster teamwork, and coordination through collaboration, holds self and others accountable to HSE standards and commitments, monitors performance and takes corrective action as necessary to ensure safety of people.

### **3.20.3 Use of PPE**

Contractor shall ensure that personnel assigned to execute the services (own and/or subcontracted personnel) employ the protective equipment appropriate for the nature of the work to undertake and likewise provide the appropriate training for correct usage thereof. Task specific PPE shall be identified as part of the Contractors risk assessment process but SGRE may in addition communicate specific requirements in advance of mobilization.

### **3.20.4 Housekeeping**

The Contractor through their site inspection arrangements shall ensure that a housekeeping standard is maintained continuously throughout the duration of the work with the focus on ensuring the safety of personnel particularly in relation to slipping, tripping, fire, and environmental hazards. Due regard shall be paid to proper disposal of all types of wastes especially hazardous wastes, tidiness, and clear access ways and emergency exits.

Access and egress of all exits, fire and safety equipment, and work areas shall be kept clear of obstructions at all times. Special attention shall be given to among others, maintaining clear walkways, removal of slippery and tripping hazards, securing, or removing of loose materials at height, and proper storage of materials.

### **3.20.5 Work Equipment (Machinery, Appliance, Apparatus, Tool)**

The Contractor shall ensure that all work equipment is subject to a maintenance and inspection regime including any required calibration and certification according to international normative standards (ISO, EN) and any specific local legal requirements and that a system exists to provide the necessary traceability.

SGRE reserves the right to inspect the Contractor's work equipment at reasonable notice for the purpose of ensuring conformity with these health and safety and local legal requirements and, in the case of the Contractor's work equipment not conforming with the requirements, the Contractor's Equipment shall be replaced by the Contractor at their own cost.

If and to the extent such is required by the health and safety requirements or Law, the Contractor's Equipment must only be used by personnel who are competent in the use of such Contractor's Equipment and the method statements, risk assessments or safety instructions provided for such use. The Contractor shall retain records of training. SGRE has the right to stop any of the Contractor's staff and / or Sub-Contractors from using the Contractor's Equipment where the relevant operator fails to demonstrate, through training records and certification, that he is competent to use the Contractor's Equipment or equipment is not according to requirements or Law. In such case, any delays in the completion of the Works shall be entirely at the Contractor's risk to the extent resulting from such cessation.

0303

The Contractor shall take into account hazards, including noise, vibration emissions, ergonomic and work environment factors such as weight, tool design and working at height when selecting work equipment (in particular hydraulic, pneumatic, and electrically powered tools) for use in executing the scope of work. Work equipment that has the potential for noise and or vibration exposure should be selected with the lowest stated noise and or vibration emissions available from Contractors based on the data sheet for the individual tool. The selection of work equipment should be made using the hierarchy of control measures based on eliminate, substitution, engineering controls, administrative controls, PPE and should be supported by a risk assessment which clearly demonstrates mitigation of identified risk i.e., noise, vibration etc.

Any specialist work equipment (lifting / transportation / testing of or movement of components) provided to the Contractor by SGRE shall be used in strict accordance with the manufacturer's instructions and only used for the range of tasks the work equipment has been designed to be used.

### 3.21 HSE Key Performance Indicators, Reporting of Incidents

Siemens Gamesa operates with several recognizable HSE KPIs such as Lost Time Frequency Rate, Total Recordable Incident Rate and High-Risk Incident Rate in order to measure HSE performance.

The Contractor shall promptly report all HSE incidents including near misses to Siemens Gamesa. A formal written notification to include the incident classification (lost time, restricted work, medical treatment, first aid, etc.) describing the incident shall be provided as soon as possible, but no later than 24 hours after the incident. A verbal notification of the incident details is required as soon as practical after any incident occurring to ensure Siemens Gamesa is in a position to provide any necessary Emergency Response or Emergency Management support.

Reporting of Incidents includes:

- all environmental incidents,
- any incident with injury including (First Aid Case, Medical Treatment Cases, Restricted Work Injury, Lost Time Case, Fatality)
- any near misses including unsafe acts and unsafe conditions

The Contractor shall on a monthly basis provide monthly working hours to Siemens Gamesa. Contractor working hours are defined as those hours spent by personnel (Blue and White Collar) on supporting or executing the service. This includes any specific Contractor and their subcontractor(s) working for or on behalf of SGRE. Where a Contractor is using sub-contractors, then those sub-contractor working hours must be reported and recorded against the Contractor SGRE have engaged contractually to execute the work.

Contractor actual working hours should be extracted from the contract or invoice. Evidence of raw data shall be retained for future reference and audit purposes.

If actual working hours are not available, then an estimation can be made using the following.

- Estimation = # of hours worked x # days worked

Note: # of working days in a month minus 1, assuming each person takes one vacation day a month. E.g., 22 days worked for 31-day months and 21 days worked for 30 days months. In addition, any statutory holidays shall be subtracted.

### 3.22 Incident Management and Investigation

SGRE may request information in relation to any incident or to participate in a Contractors investigation in order to seek assurance that incidents are adequately investigated and that appropriate measures have been taken to mitigate against a repeat of the incident taking place in future.

Where requested, a formal incident report shall be provided to SGRE describing the incident, identifying causal factors and root causes and the corrective / preventive actions that have or will be taken. The report shall be provided to SGRE no later than seven (7) days from the incident unless there is a documented extension agreed by SGRE. The status of the corrective & preventive actions shall be presented to SGRE weekly until all items are closed. In addition, the relevant safe systems of work shall be reviewed for effectiveness as part any investigation process.

The responsibility for an investigation by a Contractor should be handled by an "Investigation Lead". The Investigation Lead is to be technically competent to undertake the investigation or have the appropriate technically competent resources made available to them. The Investigation Lead is responsible for undertaking root cause analysis and identifying corrective actions required associated with each incident.

Notwithstanding the above, SGRE reserves the right to initiate its own investigation Procedure in the event it disagrees with the findings of any Contractor led investigation. The Contractor will be expected to collaborate fully with SGRE on any SGRE led investigation including providing SGRE with any relevant information requested as part of any investigation.

The Contractor shall actively train and encourage personnel to intervene on unsafe behaviors and situations and report on deviations from procedures, safe systems of work and expectations. Note that personnel include subcontractor personnel.

### 3.23 Environmental Management

The Contractor shall actively participate in avoiding negative environmental impacts and in increasing environmental performance and energy performance in accordance with the environmental and energy goals communicated and agreed with SGRE. The Contractor shall execute the works in a manner that makes efficient use of resources and energy. Avoidable energy consumption shall be prevented.

The Contractor shall comply with all provisions of Environmental Legislation in force as regards waste generation and management, discharges, atmospheric emissions, noise, and the prevention of soil contamination. The Contractor is likewise responsible for complying with all regulations on the use and storage of chemical products in work areas during the execution of all construction work and shall assume all liability for the failure to comply with its duties regarding the environment.

The Contractor shall report to SGRE any observations of unanticipated environmental impacts or circumstances that result in energy loss, such as leaks or defects. Recommendations for improving energy efficiency or for avoiding environmental impacts shall be communicated in the same manner.

Prior to executing the works, the Contractor shall propose and agree with SGRE the measures to be applied to avoid harm to the environment by minimizing climate impact, energy consumption, health and environmentally hazardous chemicals, waste, resources, packing materials (e.g., by using used or recycled materials). These measures shall be reflected within the Contractors HSE documentation including where relevant, Safe Systems of Work.

The Contractor shall establish and implement environmental management arrangements that detail the practices, procedures, and control measures for effective management of environmental aspects and impacts, as required by the relevant authorities.

0303

Environmental aspects include, but not limited to:

- a) Use of resources, e.g., chemicals, water, energy, fuel, etc.
- b) Air emissions
- c) Wastewater discharges
- d) Public nuisance, e.g. noise, odor, dust, etc.
- e) Wastes generation

The Contractor shall develop waste management arrangements in accordance with any requirements from SGRE and the relevant authorities. These arrangements shall inventorise all types of wastes and state their method of disposal and make available before the commencement of any work. These arrangements shall be regularly updated as conditions change. The Contractor shall handle, sort, and dispose all types of wastes in conformance with the relevant procedures and SGRE requirements. SGRE may request the Contractor to provide documental evidences of proper management of waste (e.g., contracts with waste management companies, authorizations of such companies, transport logs, etc.) and any other demonstrating compliance with the environmental requirements.

SGRE may request the Contractor to provide documental evidences of proper management of waste (e.g., contracts with waste management companies, authorizations of such companies, transport logs, etc.) and any other demonstrating compliance with the environmental requirements.

The Contractor shall ensure spill prevention is practiced and in place, where necessary. E.g., chemicals/fuel is stored in durable containers, secondary containment at the chemical/fuel storage area and during handling of chemicals/fuel, etc. which are labeled properly.

The Contractor shall evaluate and follow-up any environmental impact as result of the work executed. The follow-up shall include environmental monitoring where required or as agreed with SGRE. The Contractor shall use results systematically to minimize environmental impact from execution of the work.

The Contractor shall be liable for any violation of applicable environmental law by its employees, agents, contractors, or other representatives, and shall defend, indemnify, and hold harmless Buyer against any claim, suit, action, governmental enforcement action, loss, damages, liability, or expense (including reasonable attorney's fees) arising out of the actual or alleged violation of environmental laws. SGRE may inspect compliance with all the aforementioned requisites, which shall not absolve the Contractor of any environmental liability that may be imposed upon him. Failure of the Contractor to comply with these Environmental Requirements could lead to the contract cancellation.

Main Contractors of construction projects (e.g., civil works and assembly of wind turbines, industrial plants, buildings, etc.) must additionally follow the environmental requirements established in PRO-46869 Ap.5 SGRE Environmental requirements for main contractors.

### **3.24 Data and records reporting**

The contractor shall submit in a regular basis as indicated by SGRE the data to allow measuring the contractor specific HSE performance but also consolidating it into the general data flow in SGRE to calculate different KPIs and the general performance. Some examples of this data are worked hours, number of incidents by type, fuel consumption, CO2 emissions, waste generated, etc.

The contractor shall submit to SGRE the documental evidences justifying compliance with the HSE site requirements whenever requested by SGRE or its customers, usually in advance to access a site. The contractor shall use to send the information and documentation the means established by SGRE or its customers, for instance: specific IT applications, SharePoint folders, emails, etc. and shall establish the necessary organizational and technical means requested by such means.

## 4 SPECIFIC HSE REQUIREMENTS RELATING TO LIFTING OPERATIONS

### 4.1 Planning

All lifting operations must be planned to ensure they can be carried out safely and that all the foreseeable risks are mitigated. Planning must be carried out by a competent person (Lifting Specialist) who has appropriate training and knowledge of the lifting operations being undertaken. The outcome of the planning process should be a written Lift Plan which comprises risk assessments, method statements and supporting information such as technical drawings, rigging arrangement, lifting instructions etc. The overall purpose of the Lift Plan is to explain to those undertaking the work how it will be done safely. The Lift Plan must be available at the point of work and must be reviewed and signed by all personnel involved in the lifting operation. The Lift Plan must form part of the Pre-Task planning prior to the commencement of each lift.

The Lift Plan for a Classification 2 (Complex Lifts) must conform to the following in terms of minimum content and as guided further within the detailed requirements in Section 4 of this document:

- Management overview: Document control indicating as a minimum the Preparer, Checker, Approver, Change Control, Signed and Dated.
- Lift Plan Drawings: Engineered lift plan drawing(s) and calculation(s) including drawing of rigging details
- Crane Specifications: Crane (mark and model), Boom length, Rated capacity (t), Radius (m) etc.
- Ground Bearing Capacity: Documented calculation of required ground bearing as measured or calculated capacity statement for each individual lift zone in question
- Roles & Responsibilities: Statement of the lifting teams individual Roles and Responsibilities during the lifting operation including a Lift Plan hand over and acceptance sign off sheet
- Communication: Communication plan outlining arrangements (means and method) for communication within the lifting team and support personnel
- Lifting Instructions: Method statement – Step by step description of the lifting operation with detailed individual instruction for each role in the lifting team outlining aspects such as but not limited to - general preparation for lifting incl: rigging and checks, emergency response etc.
- Load Specification: Load specification of components to be lifted, based on the dimensions and weights provided by SGRE. The plan shall specify the weight incl. lifting equipment and accessories to represent the total load on the crane hook
- Environmental Impact Restrictions: Environmental impact restrictions such as adverse weather limits
- Supporting Risk Assessment -

SGRE reserve the right to periodically assess compliance with the provided Lift Plans and any deviation deemed critical to safety by SGRE Lifting Specialist may result in SGRE stopping the affected work(s) at the Contractors cost (including any liquidated damages) until such time the Contractor can put in place measures as agreed with SGRE to rectify the causes of the deviation. In this event work will not be allowed to recommence until authorized by SGRE. For the avoidance of doubt SGRE deem critical to safety to mean any deviation considered that which is considered to be essential to either the safe performance of the lifting equipment, accessories or lifting operation.

0303

#### 4.1.1 Personnel

Crane Operators must be trained, competent and certified by a recognized body and be permitted to operate the crane type and capacity being utilized for the operations. They must also be familiarized with the characteristics of the crane they are required to operate. Slinger/Signalers must be trained, competent and certified by a recognized body and where necessary must also be instructed or familiarized in the use of specialist lifting or rigging equipment – such as yokes, beams, grippers etc.

Competency is based upon the operator's skill, knowledge and experience relating to the specifics of the crane being operated and is supported by training which meets as a minimum the required local legal requirements, ISO 15513 Cranes – Competency Requirements for Crane Divers (Operators), Slingers, Signalers and Assessors with training having been provided via a recognized industry accreditation scheme such as ECOL (European Crane Operators License), OSHA, OPITO or other recognized equivalent.

Personnel must only ever use lifting equipment and accessories in accordance with the limits of their training, company procedures (SSOW etc.) and manufacturer's instructions.

#### 4.1.2 Lift Supervision

All complex lifting operations require supervision at all times and for the entirety of the lifting operation by a Lift Supervisor. The Lift Supervisor should be competent and suitably trained and should have sufficient experience to carry out all relevant duties and authority to stop the lifting operation if it is judged dangerous to proceed. Competency is a combination of skill, knowledge, training, and experience and SGRE consider a Lift Supervisor shall be able to demonstrate:

- Minimum 4 years onsite experience with Complex (Classification 2) lifting operations.
- Have a working knowledge of rigging and lifting operations.
- Have administrative and supervisory skills to schedule, monitor and control the "lifting equipment" and lifting operations.

Although the Lift Supervisor can fulfil other roles within the lifting operations, such as that of a slinger/signaler, this individual should not be the crane operator. The lift supervisor must always retain the authority to stop the work if they feel it cannot be done safely or in accordance with the supplied Lift Plan. Complex lifting operations are defined as any of the following:

- Any lifts of SGRE WTG main components
- Conducted in a sensitive environment, difficult or restricted areas
- Complex shapes, offset or high Centre of Gravity (CoG) loads
- Multiple crane or tandem lifting
- Where standard rigging or slinging practices do not apply
- Where personnel are lifted
- Engineering input is required

#### 4.1.3 Categorization of Lifting Operations

Lifting operations in SGRE will be categorized into two classifications, in order to reflect the risk and complexity of the lifting operation and the required level of control.

0303

Classification 1 (Standard)	Classification 2 (Complex)
<p><i>Lifting operations involving standardized goods; intended and suitable for safe lifting operations</i></p> <ul style="list-style-type: none"> <li>• Center of gravity known or easily estimated</li> <li>• Weight of load known or easily estimated</li> <li>• Standard Rigging and Slings practices</li> <li>• Standard Routine and Repetitive lifts where a Work Instruction is implemented</li> <li>• Standardized goods; intended and suitable for safe lift.</li> </ul>	<p><i>Lifting operations that requires engineering competences and calculations in the planning phase</i></p> <ul style="list-style-type: none"> <li>• Onshore and Offshore site lifts of WTG main components</li> <li>• Conducted in a sensitive environment, difficult or restricted areas<sup>1</sup></li> <li>• Complex shapes, Offset or high COG loads</li> <li>• Multiple Crane Lifting/ Tandem Lifting<sup>2</sup></li> <li>• Where standard rigging or slinging practices do not apply</li> <li>• Persons being lifted</li> <li>• Engineering input required</li> </ul>

## 4.2 Deviation / Management of Change

Where there is a requirement to deviate from the Lift Plan for a Classification 2 Lifting Operation, this must not be done without the authorization of the Lifting Specialist who planned the operation. Lift Plans should contain a robust and documented deviation/management of change procedure that requires the deviation to be both documented and signed off by the Lifting Specialist.

## 4.3 Selection of Crane

When selecting an appropriate crane for conducting lifting operations, the Contractor shall ensure the following factors are considered:

- Weight, dimensions, and characteristics of the load/s
- The radii and heights of where the load/s require lifting from/to
- Space available for crane access/egress, mobilization/de-mob, travelling and operation
- The required configuration of the crane to provide adequate height, radius, and capacity for the intended operations, taking into account variables such as:
  - Boom length and configuration
  - Ballast/counterweight
  - Falls of hoist rope
  - Selection of hook block
  - Outrigger spread
  - The swing radius of the crane structure relative to the position of any proximity hazards
  - Permissible wind speed limitations
  - Appropriate Factors of Safety (FOS) are considered – such as dynamic amplification factors for dynamic lifting operations

## 4.4 Ground Conditions / Loading

Where applicable to the lifting operations, worst case ground loading calculations must be supplied to SGRE as part of the Lift Plan process. Where ground loadings exceed the maximum permissible figures as given by SGRE in the site ground specification from construction or engineering reports, appropriate measures must be taken to reduce the imposed loads below these maximum permitted figures, this can be done with the use of appropriately sized outrigger/spreader mats. Siting of the crane should also take into consideration the presence of any known underground services, voids, or structures. Ground loading calculation software (such as LICCON Planner) does not take into account any additional ground loadings imposed during the lifting operations caused by wind loads acting on either the load or the crane boom structure, therefore loads with excessively large surface areas (rotors and blades) require an appropriate Factor of safety included in these calculations to reduce the potential for crane overturn.



0303

Further guidance on this topic can be found in the *FEM 5.016* publication *Safety Issues in Wind Turbine Installation and Transportation*. Cranes and their supporting outrigger structures must never be positioned directly adjacent to the edge of a slope or excavation. The travelling weight of cranes and associated transport must also be considered when planning to bring cranes into SGRE locations, ensuring that the ground conditions are suitable to support the axle loadings imposed along the intended travel path of these vehicles.

#### 4.5 Maximum Operational Wind Speeds for Conducting Lifting Operations

The Lift Plan must identify the maximum operational wind speed limitations for conducting the planned lifting operations, this should include how they are measured or calculated and may require assigning individual wind speed values to some loads based on their size/weight ratio. Where applicable, the Lift Plan should also identify suitable weather windows required to safely complete the intended operations. The Lifting Specialist planning the operation must ensure that where necessary appropriate de-rating of operational wind speed limitations is applied to all loads which fall outside the design criteria of the crane (>1.2m<sup>2</sup>/t). Where loads require wind speed de-rating, it is permitted to provide calculations given directly from a Load Case which has been supplied by the crane manufacturer.

#### 4.6 Examination, Inspection & Maintenance

Prior to use on any SGRE site, all lifting equipment and accessories must hold a valid, in-date certification of statutory inspection/examination (as applicable) in accordance with the local legal requirements. Whilst at any SGRE location, should there be a significant change or incident which may affect the safe operation of the lifting equipment or accessories, SGRE reserve the right to request that a new statutory inspection/examination is undertaken to ascertain the continued safety of the equipment in question. Such circumstances may include, but are not limited to:

- Any item of lifting equipment/accessories being placed into an overload situation
- Any significant load bearing component failure and/or repair
- Any significant impact on any of the load bearing/structural components of the lifting equipment with any proximity hazards, such as collision with an attached load, WTG structure or adjacent plant/machinery

All lifting equipment and accessories as a minimum must be maintained in accordance with the respective manufacturers' requirements. Lifting equipment and accessories must always receive a pre-use inspection prior to use at any SGRE location and where necessary this must also comply with any local legal requirements. Any equipment or accessories found to be defective must be removed from service and quarantined in such a manner as to prevent unintended or accidental use.

#### 4.7 Mobilization / Demobilization

All mobilization and demobilization operations undertaken at SGRE locations must be done in accordance with a Safe System of Work that has been developed based on the manufacturers assembly/disassembly procedure. The Safe System of Work must identify and mitigate the significant risks associated with these activities, which may include things such as:

- Overhead obstructions/vehicular access
- Personnel working at height
- Personnel working in close proximity to suspended loads
- Personnel occupying work areas with moving plant/vehicles
- Simultaneous operations

Where lifting operations are undertaken as part of the mobilization/demobilization process, those operations should also comply with the requirements of this whole chapter.

#### 4.8 Suspended loads

One of SGRE's 10 Life-Saving Rules is that personnel must; *maintain a safe distance from any suspended load and never stand or walk underneath a suspended load*. If technical solutions exist, then working beneath suspended loads or in areas at risk of entrapment shall be prohibited.

#### 4.9 Exclusion zones

Exclusion zones must be established for all lifting operations undertaken at SGRE locations. The Lift Plan must clearly identify and define the exclusion zones as well as describe how they are demarcated and enforced. The Lift Plan should also identify the numbers and roles of personnel permitted to enter exclusion zones during lifting operations. In high traffic areas, priority must be given to the use of physical barriers, signage and if appropriate the use of spotters. Where unmanned physical barriers demarcate exclusion zones which block high traffic or vehicular access, signage should be displayed highlighting who to contact if access to the area is required. To ensure the continued effectiveness of exclusion zones, after the lifting operations are completed and the area is safe barriers should be removed and access to non-essential personnel should be reinstated.

#### 4.10 Overhead obstructions

As part of the lift planning process all overhead power lines or obstructions at SGRE locations shall be identified and documented in the Lift Plan prior to the arrival at site of the crane. Safe clearance distances and exclusion zone requirements must be ascertained from the Distribution Network Operator (DNO) or Electricity Supply Company. If there is a requirement that lifting operations must be undertaken in the vicinity of overhead power lines, then attempts must be made prior to mobilization to engage with the DNO or supply company to try and ensure that the lines are de-energized and/or re-routed. Before starting an operation near to power lines, the organization responsible for the lines shall be notified and provided with all necessary pertinent information. SGRE Contractors must co-operate with organizations responsible for overhead power lines and comply with their instructions/requirements as well as any specific local legal requirements. Where cranes comply with all the above requirements and are still placed in positions where they may come into contact with overhead power lines, additional means of preventing contact must be implemented, such as programmable limitations on slew or boom movements.

#### 4.11 Lift Supervision

#### 4.12 Visibility

If for any reason (e.g., insufficient lighting or fog) visibility of the load cannot be maintained throughout the operation by either the crane operator or slinger/signaler despite any mitigations put in place (such as lighting), then all operations must cease.

#### 4.13 Communication

SGRE require that a slinger/signaler must be utilized at all times when the load is in transit. This is especially important where the crane operator cannot maintain an unobstructed view of the load and/or

0303

clearances during the lifting operation. When selecting appropriate methods of communication, the Lifting Specialist planning the operation must consider factors such as:

- Visibility/line of sight
- Ambient/background noise
- Distance
- Interference
- Number and location of personnel
- If load control equipment is being used
- Safe position of the slinger/signaler during the lifting operation

Where radios are used, they should be checked, set to a dedicated pre-determined channel, and only utilized by the lifting team. When using radios, operations must stop immediately if it becomes apparent that communications have failed. Where taglines are used over distances, additional radios must be available to relay instructions to these teams also. Where clear line of sight exists between crane operator and Slinger/Signaler and no other personnel are involved, hand signals are permitted to relay simple instructions. Mobile phones are not permitted as a method of communication during normal lifting operations.

#### 4.14 Suitability of Lifting Accessories and Hardware

All lifting accessories must only ever be used in operations for which, and under such conditions, that they were designed and intended for. Furthermore, all lifting accessories used for attaching loads to lifting equipment must fully comply with the applicable local legal requirements and only ever be used in accordance with the manufacturer's instructions. Lifting accessories must only ever be used within their Safe Working Load/Working Load Limit (SWL/WLL) which should be clearly marked on the accessory. Where the accessory is not marked then the Contractor must retain documentation which proves the SWL/WLL of the accessory. Selection of appropriate lifting accessories is the responsibility of the Lifting Specialist planning the lifting operation and they must take into account any necessary calculations required for the reduction or de-rating of the SWL/WLL of the equipment based on the configuration in which the accessories are being utilized, including factors such as, but not limited to:

- Sling angles
- Number of sling legs
- Dynamic loads
- Rigging arrangement configuration, such as choke hitches etc.
- Manufacturer's specifications

#### 4.15 Crane Operations

Cranes must only ever be operated at SGRE locations by trained, competent personnel authorized to operate the crane by the Contractor. They must always and only be utilized in accordance with local legal requirements, the supplied Lift Plan and the manufacturer's user manual/instructions. Crane movement of any kind must only ever be instigated by communication from a certified slinger/signaler and the crane operator/s must always follow the instructions given to them. Where there are simultaneous crane operations being undertaken at an SGRE location, all crane/load movement must be coordinated by the Lift Supervisor with communication between the respective lifting teams prior to any movement. Whenever there is a load attached to the crane the crane controls must be manned, leaving cranes unmanned with suspended loads, including lifting accessories, is not permitted. Where cranes are to be left unmanned at SGRE locations, this must be done in accordance with the Lift Plan

0303

and manufacturer's user instructions ensuring that the crane is left in a safe condition and that it does not present a hazard to the surrounding area. Unmanned cranes must be locked, isolated or have the keys removed to prevent unauthorized operation. Under normal operating conditions it is not permitted to use mobile phones or communication devices of any kind other than 2-way radios during crane operations.

#### 4.16 Safety Devices

Cranes shall be equipped with fully operational, certified safety devices as detailed in the operators' manual/user guide and as required in accordance with the applicable design standard/requirements for the crane as well as any local legal requirements. Safety devices shall be maintained at all time to ensure the integrity of the certification (CE Marking or equivalent).

Examples of such systems include, but are not limited to:

- Overload protection devices
- Operational limit switches
- Emergency stop functions
- Rated Capacity Indicators/Automatic Safe Load Indicators
- Anemometer
- Level indicators

The intentional disabling or overriding of any crane safety devices is not permitted for lifting operations undertaken at SGRE locations<sup>1</sup>. SGRE reserves the right to stop work and to suspend/exclude or ban from any SGRE sites any personnel or Contractor organizations found to be deliberately by-passing crane safety devices.

*<sup>1</sup>The ONLY exception to this mandatory prohibition is during the lifting of personnel using offshore cranes, please see 'Lifting of Personnel' for further details.*

#### 4.17 Lifting of Personnel

The lifting of personnel using cranes at SGRE locations must only ever be undertaken as a last resort if no other safe means of accessing the work area exists. It must also be permitted in accordance with local legislation, the intended use/duties of the crane and providing that the personnel carrier is correctly inspected and has been specifically designed to lift people. The operation must be carefully planned and must identify stringent environmental limitations such as wind speed and visibility limitations as well as the inclusion of a comprehensive rescue plan. Some offshore cranes are fitted with overload protection systems which allow the hoist to be placed into freefall to protect the crane from being overloaded in the event of snagging a moving object, the lifting of personnel using offshore cranes with this function is not permitted unless they can be deactivated. No personnel must ever be lifted by a crane where the hoist can be placed into freefall.

The lifting of personnel will require approval from the SGRE Lifting Specialist before being permitted, and a detailed assessment of the risks and for this activity should form part of any Lift Plan.

#### 4.18 Offshore Cranes

Lifting operations offshore require the same process in respect to planning, documentation, and execution of the operation as lifting operations onshore. However, special attention must always be given to offshore lifts as a result of the different and less predictable circumstances due to the environment (waves, current, boat movement, evacuation times, communication etc.) which can

0303

interfere with the lifting operations and potentially cause hazardous situations. These circumstances must be taken into consideration during both planning and execution of the operation and evacuation procedures. This includes downgrading the cranes as well as applying the Dynamic Amplification Factor according to regulatory requirements.

#### **4.19 Load control devices**

Load control devices (LCD) must be used when load rotation creates a hazard during planned operations. LCD are only intended to be used for controlling, turning, and minimizing load swing. Positioning of the load itself is only permitted by guiding the crane into position to allow the load to be placed into its' intended location. LCD must not be used to drag loads and must not be subject to tension beyond which it is intended to withstand. Where applicable LCD should be a suitable length to prevent the introduction of additional hazards. Where personnel are required to operate/control LCD they must be positioned in such a way that they can maintain control of the load without danger of becoming entangled or struck by the equipment. The LCD must also keep personnel at a safe distance from suspended loads. Ropes must never contain knots along their length and must never be wrapped around the hands or body of any personnel. Recovery of LCD such as ropes/taglines must never be done by placing hands or arms beneath a suspended load to retrieve them, they must be retrieved by using equipment such as a boat hook or pole hook. Controlling the load using direct physical contact should be avoided wherever possible and is only permitted once the load has reached a height where it no longer poses a risk of pinching or trapping hands or feet.

#### **4.20 Moving or Repositioning Cranes**

When moving or repositioning assembled or partially assembled cranes at SGRE locations, this must only be done in accordance with the manufacturers operating instructions and a full and suitable documented assessment shall be completed prior to the activity. The travel path of the crane must be capable of withstanding the axle/track loads imposed along the whole planned route, which is particularly important if cranes are travelling with additional ballast/counterweight. The route must be checked prior to moving the crane for any overhead obstructions, excessive gradients, slopes or excavations, underground services or voids, proximity hazards, or narrow access points and if any issues are observed, the crane must not be moved until such time that the identified issues have been resolved.

## **5 SPECIFIC HSE REQUIREMENTS RELATING TO CONTROL OF HAZARDOUS ENERGIES**

### **5.1 Control of Hazardous Energies Program**

Safety from the System when working with hazardous energy sources including wind turbine components (inclusive of electricity (Low Voltage), mechanical, hydraulic, pneumatic, or other sources that can cause harm) shall be managed via an agreed Control of Hazardous Energies Program. The Program shall be provided to and agreed with the local SGRE HSE contact prior to mobilization of the Contractor. Depending on the nature of the Contract (labor only for example), the Contractor may be required to work in accordance and under the control of SGRE's own Control of Hazardous Energies Program.

Examples of work activities that may expose employees to electrical hazardous energies:

- opening energized electrical cabinets
- verifying zero energy
- securing and removing lock out/tag out (LOTO) devices

0303

- conducting troubleshooting on energized equipment and parts

The Contractor shall provide an electrical organization nomination chart to SGRE before commencement of any electrical installation, termination and or commissioning works. The Contractor must ensure that persons nominated as electrically skilled to perform electrical isolations have been authorized by the Contractor as an Electrically Skilled Person in accordance with local legal requirements or standards. Where requested to do so by SGRE, the Contractor must be able to provide evidence of competence as an Electrically Skilled Person.

## 5.2 Electrical Work Equipment & Arc Flash Clothing, PPE

The Contractor is responsible for the provision of required tooling, meters, and equipment for all electrical works.

All tooling shall be appropriately electrically rated, and where necessary have a valid calibration inspection and

test. The following specific requirements are for various types of electrical test equipment, special tools, and their accessories:

- Rated for the circuits and equipment to which they will be connected
- Instruction on use for personnel
- Used in accordance with the manufacturer recommendations and used as intended
- Equipped with slip protection on test probes
- Equipped with self-contained fault protection or limitation devices, such as internal current-limiting fuses or probe current-limiting resistors
- Inspected prior to each use
- Electrical test instruments and all associated test leads, cables, power cords, probes, and connectors shall be visually inspected for external defects or damage by the employee before each use. If visible defects or evidence of damage that might expose an employee to injury are evident, the defective or damaged item shall not be used until any required repairs and tests have been made.
- Maintained and stored according to the manufacturer's instructions. The employee is responsible to ensure that electrical test equipment and associated probes are stored in a manner that will protect them from moisture and dust and will prevent damage and deterioration.
- All tools shall be calibrated annually.
- Earthing and short-circuiting devices shall be in accordance with IEC 61230 (live working – portable equipment for earthing or earthing and short-circuiting) or shall follow requirements specified by SGRE.
- Portable ladders / step ladders must be of a non-conductive type.
- Personal Protective Equipment comprising clothing, head, face, and hand protection
  - Appropriate Arc Flash PPE shall be worn when performing electrical work such as:
    - Opening energized electrical cabinets
    - Switching, deenergizing
    - Verifying zero energy state
    - Securing, applying, and removing LOTO
    - Conducting troubleshooting on energized equipment and parts
    - Working on or near exposed live conductors
    - Live work, proving dead, testing and isolations

Personnel assigned tasks where they may enter the designated arc flash boundary surrounding an energized or potentially energized electrical source shall be provided appropriate PPE that provides the necessary protection against the incident energy associated with the arc flash hazard at that work

0303

location. This rating shall be established by Risk Assessment conducted prior to the electrical work being carried, as per arc flash labelling displayed at the work location or taking account any such analysis as may be provided by SGRE. Arc Flash rated clothing and PPE shall be used in accordance with the relevant arc thermal protective values as determined by the risk assessment.

#### ARC RATED CLOTHING, PPE LEVELS AND CALORIES

- Level 0 = 0 calories / cm<sup>2</sup> (no protection)
- Level 1 = 4 calories/ cm<sup>2</sup> (lowest level of protection)
- Level 2 = 8 calories/ cm<sup>2</sup>
- Level 3 = 25 calories/ cm<sup>2</sup>
- Level 4 = 40 calories/ cm<sup>2</sup> (highest level of protection)
- an Arc kit consisting of Zero Energy Kit containing electrically insulated gloves and a Multisafe DSP voltage continuity tester or equivalent.

All individuals assigned to work inside Wind Turbine components shall be issued with personal locks, to be

able to work in areas where lock out, tag out systems are in force. The Contractor shall consult with local SGRE HSE for clarification or advice on acceptable standards for LOTO equipment and Arc Flash clothing & PPE.

### 5.3 Lock Out / Tag Out (LOTO) Devices & Hardware

Lockout devices shall be:

- Approved for use by the Contractor and in compliance with the respective recognized standards e.g., Lockout Tagout OSHA industry standard 29 CFR 1910.147 or equivalent and shall be designed for use for the LOTO program. All other uses are prohibited.
- Fit for purpose to lock out the required Energy Isolation Device
- Substantial enough to prevent removal without excessive force or unusual technique, such as bolt cutter or other metal cutting tools
- Must be durable, so that they are capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.

Lockout / tagout padlocks shall be:

- Uniquely identifiable so that they can be traceable to the authorized employee using
- Have only one key, and that key must remain in control of the worker
- Not be used for any purpose other than lockout/tagout
- Must be durable, so that they are capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.

Sharing or borrowing of padlocks is not permitted. It is recommended that lockout/tagout padlocks are color coded to differentiate between personal padlocks and group lock out padlocks.

Danger Tags shall be:

- Substantial enough to prevent inadvertent or accidental removal
- Weather proofed and attachment shall be non-reusable, self-locking and non-releasable
- Must be durable, so that they are capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.

0303

- Clearly visible with explicit warning text containing a section for the authorized employee to mark information relating to the specific tag out isolation, including, but not limited to: Person Name, Date / Time. Warning text could be "DO NOT OPERATE", "DANGER - LOCK OUT/ TAG OUT" or similar.

Training should include a method to confirm that the purpose and function of the lockout/tagout program is understood and that the knowledge and skills required for the safe application, usage, and removal of energy controls are conveyed to all personnel who participate in the lockout/tagout program or who may be affected by this program. All evidence of competences shall be documented, including the date and names of those persons attending the training.

## 5.4 High Voltage

Only personnel nominated and qualified as a High Voltage Technician (HVT) shall work on high voltage systems. High Voltage (HV) systems are defined by SGRE as operating voltages above 1000V AC / 1500V DC or as may be defined by local standards. The Contractor shall be able demonstrate through provision of training records if asked that that the personnel are able to undertake switching instructions and operations or HV activities for which they have been trained.

### 5.4.1 Live Working

Siemens Gamesa Renewable Energy prohibits Live work on HV installations except for proving zero energy state.

### 5.4.2 Working in the Vicinity of Live Parts

Work activities in the vicinity of live parts with nominal voltages above 50 V AC or 120 V DC shall only be carried out, when safety measures ensure that live parts cannot be touched, or the live working zone cannot be reached. In order to control the electrical hazards in the vicinity of live parts, protection may be provided by either screens, barriers, enclosure, or insulating covering. If those measures cannot be carried out, protection shall be provided by maintaining a safe distance to bare live parts and when necessary, providing appropriate supervision. Care shall be taken to ensure that a stable working location is provided which leaves the worker's both hands free.

Before commencement of work, the responsible person for the work activity at the work location (Team Lead) shall remind all affected persons or workers on the maintenance of safety distances, on the safety measures that have been put into force and on the need for continual awareness of safety at all time. The boundary of the work location shall be defined precisely and clearly. Furthermore, attention shall be drawn to unusual circumstances or conditions. These instructions shall be repeated at suitable periods or after a change in working conditions.

The work location shall be marked out by suitable barriers, ropes, flags, lamps, signs etc. adjacent live switch panels shall be distinguished by additional, clearly visible means, for example clear warning signs secured to the front of doors.



0303

## 6 SPECIFIC HSE REQUIREMENTS RELATING TO TRANSPORTATION OF WTG COMPONENTS

### 6.1 Blade Tip Protection

Any time a blade is on a transport trailer, blade tip end protection and positioning lights must be secured and fitted at all times.

### 6.2 Inspection Program for Land Transport

The Transport Contractor shall have a formal documented inspection program for all land transport covering the following topics:

- Truck and Trailer condition (complete transporter)
- Load Securement Inspection
- Pre-Trip Inspection

This inspection program shall be submitted to SGRE at least 6 weeks prior to the transportation of any components.

### 6.3 Lift Plans

SGRE shall provide engineering drawings and work instructions to the Transport Contractor for each WTG component which will be lifted that identifies the weight, dimension, center of gravity (COG) and any approved lifting points. This information shall be provided to the Transport Contractor upon signing of the contract.

Lift Plans shall be prepared in accordance with the requirements of Section 4 of this document.

### 6.4 Mobile Cranes

- Lift plans shall be provided by the Contractor for all mobile or other crane lifting operations where a component or other associated equipment is identified as a complex lift.
- Lift plans shall be submitted in English no less than 4 weeks prior to the operation for review and acceptance by SGRE.
- All lifting operation must be done in accordance with the lift plan. The lift plan must be present during the lift and the lifting Contractor must review the plan together with all employees involved in the lifting operation before commencement of each lift.

### 6.5 Land Transport Load Securement Plan

SGRE shall where necessary provide engineering drawings and work instructions to the Transport Contractor for each component which will identify the weight, dimension, center of gravity (COG) and approved attachment points for lashing the components. This information shall be provided to the Transport Contractor in appropriate time to develop the required Land Transport Load Securement Plans. The Transport Contractor shall provide land transport load securement plans to SGRE in English for all components identified and the plans shall contain the as a minimum following information:

Load securement plan based upon the numbers listed on the left side of the table below.

Item Nr.	Load Characteristics
----------	----------------------

0303

1.	Center of Gravity of WTG component
2.	Load Weight of WTG component
3.	Plan view – showing overall dimension of the WTG component on the trailer.
4.	Elevation view - showing overall dimension of the WTG component on the trailer.
5.	Size and material of tie down assemblies (chains, wire rope, steel strappings, synthetic webbing)
6.	Number of lateral or transverse tie down assemblies
7.	Number of forward or longitudinal tie down assemblies
8.	Number of aft or rearward tie down assemblies
9.	Lashing chart summary of securement system
10.	Horizontal angle of tie down assemblies
11.	Vertical angle of tie down assemblies
12.	Calculations to prove the tie down assemblies

## 6.6 Route Surveys / Study

A route clearance study shall be completed and submitted to SGRE checking and verifying proper turning areas, overhead clearances (e.g., bridges, power lines, etc.), and ensure that the terrain cross fall, over the projected route, does not exceed the trailer / transporter’s stability.

## 6.7 Escorted Loads

The primary role of any escort vehicle is to alert other road users and pedestrians of the presence of an abnormal load or abnormal vehicle. The escort person in the vehicle shall also act as the contact point with others while escorting the load or vehicle. The escort vehicle and its occupants shall assist the abnormal load or abnormal vehicle in safely negotiating the transport route.

Where the load or vehicle being used to transport the load is considered to be “abnormal” according to local legal requirements then the Contractor shall ensure that any escort vehicles are visibly identifiable to other road users and that drivers have sufficient training and or experience to carry out self-escorting duties competently and safely in a manner which accords with local legal requirements.

If the escorting is subcontracted by the Contractor, the Sub-Contractor shall ensure that their escort vehicles and their personnel shall have sufficient training and / or experience to carry out escorting duties competently and safely according to local legal requirements.

### 6.7.1 Escort Vehicles & Escort Personnel

An escort motor vehicle shall have a minimum of four wheels. The escort vehicle must afford the driver good visibility. To facilitate good visibility to the rear and side, the vehicle shall be fitted with exterior mirrors on both sides. In addition, it is preferable to have rear windows to the side and rear windows at the back of the vehicle to aid driver visibility. Vehicles with open cargo space are not permitted. The escort vehicle shall not form any part of the units carrying or hauling the abnormal load or the abnormal vehicle. The front of the vehicle shall be marked clearly to identify that it is an escort vehicle with flashing amber warning beacons fitted to the roof of the escort vehicle to warn other road users

0303

An escort vehicle shall have a communications link to the abnormal load or abnormal vehicle; and a communications link to the emergency services if required. Hand-held mobile phones or similar devices shall not be used by the escort person whilst driving. A mobile phone or other device is defined as 'handheld' if it is, or must be, held at some point during the course of making or receiving a call (or text, or email, or other data – e.g., to / from a GPS navigation device). 'Driving' will include pausing at traffic lights or in temporary traffic jams. Hands free equipment is not prohibited.

Escort vehicles shall carry roadside safety equipment to effectively manage roadside safety during planned or unplanned stops, each escort vehicle shall be equipped with a suitable number of traffic cones and flashing lighting equipment which can be affixed to the cones.

In the event of an incident during the journey, it is expected that the escort vehicle will be first to the scene. Therefore, each vehicle shall be equipped with, (and personnel trained in the use of):

- A suitably sized, tested, and certified powder or CO2 Fire Extinguisher
- A '1 to 10' employee First Aid Kit.

The fire extinguisher shall have a valid certificate and the First Aid Kit maintained and the contents within their 'use-by-date'.

It is the responsibility of the Contractor to satisfy themselves that their own escort personnel are sufficiently competent to undertake the task of escorting abnormal loads or abnormal vehicles. Competent means that they are suitably trained and / or experienced for the role. Where a subcontractor is employed the subcontractor shall ensure that their staff are competent, through training and / or experience for the role.

Drivers of Escort vehicles are not allowed to operate other handheld equipment (remote control for rear-end dolly etc.) when driving the escort vehicle, if operation of the rear-end dolly is needed due to driving the remote control shall be operated by dedicated steersman positioned in the passenger's seat. If the dedicated steersman is not allocated to the convoy and operation of the rear-end dolly is required, then the escort driver shall leave the escort vehicle and operate the rear-end dolly steering system by walking behind the transport or from the dolly operating platform.

## **6.8 Adhoc Transports**

In the event there is a need for an ad hoc transport to occur the following provided to SGRE for review prior to being permitted to transport any WTG component:

- Safe System of Work including risk assessment
- Formal inspection program in accordance with section of 6.2
- Lift plans for all mobile crane operations in accordance with section 6.4
- Land Transport Load Securement Plans in accordance with section 6.5

## **6.9 Deliveries, Offloading & Laydown**

Where there is a requirement to gain access to the bed of a vehicle for offloading purposes which cannot be

mitigated, Contractors will provide a safe system to offload. This safe system will be in line with the hierarchy of

0303

fall prevention and in line with the following guidelines:

- Pre-slung loads requirement to eliminate the need to access the load bed
- Mechanical Means of Loading / Unloading to eliminate the need to access the load bed
- Vehicle Based (collective fall protection) Systems (e.g., Guard rails if access to the load bed is required a fixed ladder access point / fitted steps must be provided)
- Site Based (collective fall protection) Systems. (e.g., Gantry or air bags)
- Site Based (fall arrest) Systems. (e.g., overhead systems)

The above is applicable to all delivery vehicles (including smaller vans and pick-up trucks) and under no circumstances are delivery drivers to carry out any form of activity at height without suitable and adequate protection measures in place to prevent falls in line with the above mitigation controls.

There may be some instances whereby the arrangements available on site may not be suitable. In such instances it is the responsibility of the Contractor to provide means to safely load / unload the vehicle and agree this with SGRE before the delivery is made.

## 7 SPECIFIC HSE REQUIREMENTS RELATING TO WORKING AT HEIGHT AND THE PREVENTION OF DROPPED OBJECTS

Contractors involved with performing work at height shall ensure they develop and implement safe system of work to ensure that effective controls are in place, are being maintained, and are compliant as a minimum to the local legal requirements with respect to working at height. Before any work at height is undertaken the task shall be risk assessed and suitable and sufficient control measures implemented before commencement of the work. In considering work at height, regard shall also be given to ensuring the prevention of falling objects, any fragile surfaces and the environment being worked over e.g., water.

The Contractor shall ensure that all personnel who may be required to work at height are competent to do so and if asked can demonstrate that their personnel have proportionate competency to perform such activities.

When planning and preparing for work at height the following hierarchy shall be followed:

- a) Work at height must be avoided where possible.
- b) No work is to be done at height if it is safe and reasonably practicable to avoid it (i.e., prefabrication or modifications undertaken at ground level).
- c) When work at height cannot be avoided, work equipment or other measures to prevent falls must be used (normally collective protection in the form of handrails, etc.).
- d) Where the risk of a fall cannot be eliminated, use work equipment or other measures to minimize the distance and consequences of a fall should one occur (i.e., Personal Protective Equipment). The Contractors Safe System of Work shall specify the type of Personal Fall Protection Required, with work restraint prioritized over fall arrest where reasonably practicable.

The Contractor shall ensure that risks associated with open or leading edges are mitigated. The Contractor must ensure a rescue procedure is developed in the event of an incident which results in a person becoming suspended at height, and relevant personnel are coherent and competent with the procedures prior to the commencement of working at height activities. Personnel involved in the

0303

recovery or rescue of a person at height shall be competent to do so through recognized or approved training e.g., GWO Work at Height.

Furthermore, where working at height using specific types of work equipment or specific identified risks, the Contractor shall implement the requirements as detailed in sections 7.1 to 7.6 inclusive.

### **7.1 Working at Height - Scaffolding & Temporary Work Platforms**

Shall be suitably designed, constructed, inspected, maintained, adjusted, and dismantled by competent person(s). It is recommended that Scaffolding is built according to recognized international standards. If there is no local standard, it is recommended that they as minimum follow (USA OSHA 29 CFR 1926 Subpart L Scaffolds 29CFR1910.27), or EN 12811 series)

### **7.2 Working at Height - Floor openings, voids, and fragile surfaces**

Where the works, on either a permanent or temporary nature highlight the risk of openings or voids that could cause injury, the Contractor shall ensure that the void has been assessed and either protected with edge protection or covered as follows:

- Temporary fall protection measures built into the permanent design.
- The protection system must be fixed in position and be capable of taking the potential imposed loads of persons, materials, and plant that likely to affect them.
- Display highly visible danger sign warning of hole underneath.
- Contractors must ensure that a recorded checking regime is in place and ensure that the responsibility for maintenance is clear and under the control of named personnel.
- All hole protection will have an inspection recording system in place.
- All floorplates etc. removed for working purposes will be adequately tethered.
- Priority will be placed on constructing safe platforms or placing floor plates to create a safe working level.

### **7.3 Working at Height - Staircases**

Where temporary vertical access is required, stair towers are the preferred access method where reasonably practicable, in particular at high usage locations. The Contractor will ensure that staircases comply with the following:

- Are designed and erected under the temporary works policy by a competent erector and checks are carried out in accordance with legislation.
- Have ant slip surfaces to treads and landings.
- Have adequate lighting.
- Ensure that all staircases are kept free of debris and obstruction and that there is a clear checking regime in place.

Where the works calls for a permanent staircase to be used as part of the construction scheme, Contractors shall ensure there is a handrail in place. If the permanent handrail can't be installed, then a temporary system will be installed in such a manner that allows the permanent rail to be fitted without removal. All open sided handrails shall be debris netted to prevent materials and tools from falling through handrail voids. All handrail systems shall be free of sharp edges.

0303

## 7.4 Working at Height – Working Platforms, Stepladders and Portable Ladders

The use of step ladders and leaning ladders should be eliminated or minimized through good planning and correct equipment selection i.e., the use of podium steps as a practical alternative.

Should risk assessment determine that portable ladders or stepladders are the most appropriate access work equipment, the following shall be implemented:

- All portable ladders must conform to a recognized standard e.g., EN131 or equivalent and be rated to at least >150 kg maximum static load (industrial type).
- Subject to a documented weekly check carried out by a competent person. Damaged ladders shall be destroyed or quarantined from use immediately.
- Fibreglass ladders shall be used when there is a requirement for work in proximity to electrical equipment.
- No wooden ladders shall be permitted under any circumstances.
- All portable ladders shall be tied off and where possible footed to prevent movement.
- Ladders shall only be used on a clean, level, and solid surface.
- Stepladders shall only be used in the fully open position with the spreader bars locked.
- Ladders used for access and egress shall extend a minimum of one 1 meter above the top of a platform or landing.
- All portable ladders shall be used with a 4:1 ratio from the vertical. For every four (4) feet of working length the base of ladder should be one (1) foot out from the top support.
- It is not permitted to carry tools or equipment when climbing a ladder.
- Only one (1) person shall work from a ladder at one time.
- No one shall stand on the top two rungs of any extension ladder or on the top step of a step ladder.

## 7.5 Working at Height – Mobile Elevating Work Platforms (MEWP)

MEWP is a generic term and includes vertical 'scissor' lifts, self-propelled vehicle, and trailer mounted boom.

MEWP operators shall have attended an operator training course/instruction or received a certificate, card, or 'license', listing the categories of MEWP they are trained to operate. In addition to formal training for the type of MEWP, operators shall have familiarization training on the controls and operation of the specific make and model of MEWP they are using. It is recommended to follow the guidelines from IPAF.ORG (International Powered Access Federation) or another international recognized organization.

MEWP's shall be certified in accordance with the design requirements load for the region or locality where they are used in addition to the requirements in this procedure.

It is recommended that MEWP norms are in accordance with the legislative requirements at their geographic location if there is no local standard it is recommended that it, as a minimum, follow EN 280 or ANSI A92.20 or OSHA 29CFR1910.66,.67.

MEWPs shall be thoroughly examined according to local legislation and shall follow as minimum manufactures manual. The inspection shall be done by a competent person or in accordance with an examination scheme drawn up by such a competent person

MEWPs shall be subject to a program of daily visual checks before use, regular inspections, and servicing in accordance with the manufacturer's instructions and the risks associated with each MEWP.

0303

## 7.6 Dropped Objects

### 7.6.1 Dropped Object Prevention Scheme or Program

Suitable and sufficient measures shall be taken by the Contractor to prevent the fall of any material or object through implementation of an effective dropped-objects prevention (DROPS) program for static and dynamic dropped objects. The program shall be designed to reduce the risk of dropped-object related incidents by identifying potential dropped object hazards and risks, applying appropriate corrective actions, providing awareness through effective personnel training, and making use of good practices and lessons learned for continual improvement.

SGRE define a static dropped object as any object that falls from its previous position under its own weight (gravity) without any applied force. Examples are failure caused by corrosion, vibration, or inadequate securing. A dynamic dropped object is any object that falls from its previous position due to applied force, e.g., collisions involving travelling equipment or loads, snagging on machinery or stacked items, motion, or severe weather.

The DROPS program shall provide that where there is a hazard of falling objects the following measures apply:

- work equipment that can be used without risk of falling (i.e., tethering of work tools, carrying/lifting bags)
- where reasonably practicable, all tools and equipment should be lifted using mechanical lifting devices

Administrative and Passive preventative measures:

- A safety perimeter with a minimum radius equal to 1/5 the maximum height of the work being performed shall be indicated with signs conspicuously posted (e.g., warning signs, barricading tape) requiring safety helmets to be worn and warning against the potential for falling objects. The actual distance for the Safety Perimeter shall be based on a Risk assessment and thereby the distance can be greater than 1/5 of the Height.
- A toe board shall be erected along the edge of platforms whenever there is a risk from:
  - Person to fall from the platform
  - Protect person below from dropped objects.

Where tools, materials, or equipment may need to be stored to a height higher than the top edge of the toe board, then:

- Paneling or screening extending from the toe board, or platform, to the top of the guardrail shall be erected for a distance sufficient to protect employees below; or
- A guardrail system shall be installed with openings small enough to prevent passage of potential falling objects; or
- A canopy structure, debris net, or catch platform strong enough to withstand the impact forces of the potential falling objects shall be erected over areas where employees work or pass through the falling object hazard area.

### 7.6.2 Securing Objects Against Dropping

Reliable securing reduces the probability and the consequence of a drop. There are three types of reliable securing accepted by SGRE:

- Primary Fixing – The primary method by which an item is installed, mounted, and secured to prevent the item from falling (e.g., bolted connections, screws, pins, buckles, clips, welds).

0303

- Secondary Retention – The engineered method for securing the primary fixing to prevent loss of clamping force or displacement of fastening components (e.g., locking washers such as helical-spring washers, locking wire, split pins / cotter pins).
- Safety Securement – An additional engineered method applied to or around the item and secured to the main structure. Designed to restrain the item should the primary fixing fail (e.g., rated steel or synthetic nets, baskets, wires, slings). Safety securing is necessary in situations where secondary retention is not feasible.

### 7.6.3 Tool Tethers & Attachment Anchors

Tool tethers and attachment anchors are lanyards or other materials designed to secure tools. Tethers must be rated to the load they are designed to restrain and, as such, the rating of the tether and the length of the tether are interconnected. Only tethers and other containers designed in accordance with established methods or standards should be used.

The attachment point for tethers should follow the tether attachment point hierarchy where attachment to structures is preferred and attachment to the worker’s body is less desirable. When tools are anchored to a person’s body, maintain the weight such that if the tool is dropped it does not harm or destabilize the person. Ideally, this tethering should be attached to the person’s harness via a carabiner to minimize entanglement hazards.

### 7.6.4 Unattended Work Areas & Housekeeping

Unattended work areas combined with poor housekeeping, unsecured items and weather conditions routinely create dropped objects and result in serious injuries or fatalities. Before a work area is left unattended, an inspection should be conducted by the Contractor to verify there is no unsecured equipment, tools or materials that could become a dropped object.

## 8 ABBREVIATIONS AND DEFINITIONS

Abbreviation	Description
SSoW	Safe System of Work is the documentation provided by the Contractor or by SGRE which stipulates how a task shall be carried out in a safe manner and can included but is not limited to work instructions, safety method statements, risk assessments, lift plans, drawings
ESN	ESN stands for “Einkaufsschlüsselnummer”. It is a system used to categorize all the materials and services SGRE buy. An ESN code is either critical or non-critical and those ESN codes defined as critical are subject to these General HSE Requirements.

Definitions	Description
HSE plan	Specific measures for HSE will be specified in HSE plan provided prior to the start of the works, and it is the obligation for the Contractor to adhere this plan and follow all the instructions given by this document, ensuring that: <ul style="list-style-type: none"> <li>• Hazards for the health and safety of the personnel employed by Contractor and Contractor’s direct or indirect Sub-Contractors for the performance of the Works (“Personnel”) are eliminated or controlled</li> <li>• no persons who are legally on-Site including Personnel, SGRE’s personnel and visitors, suffer any injury</li> <li>• Works are conducted in accordance with all local legal requirements</li> </ul>



0303

Definitions	Description
SOP's	Standard Operating Procedures representing various kind of requirements defined by SGRE related to HSE, SOP's covers procedures, instructions, manuals, local operational controls etc. as defined in SGRE HSE management system and relevant for the work to be done. Can both be relevant to project sites and fixed facilities.
Life Saving Rules (LSR)	Compliance to Siemens Gamesa rules and requirements no matter how important or urgent the task, must be prioritized to ensure safe working conditions in tasks and the working environment. SGRE expects full commitment from employees and Contractors to follow and adhere to SGRE's work procedures and safety guidelines ensuring the correct and safe behaviors at all times. SGRE care about the safety of its employees and Contractors and the objective of implementing these '10 Life Saving Rules' is to prevent fatal accidents and/or serious injuries.
Safety is my choice	This global initiative brings the focus onto the individual: this is my decision, I am empowered to say yes or no, I choose to keep myself and my colleagues safe by using all the items I am provided with. The main objective is to remind employees of their own responsibility for Safety and promote the active participation in ensuring a safer working environment and safer individual behaviors. Zero Harm is always the goal, with "safety is my choice" we are acknowledging the empowerment and individual responsibility of everyone to make it happen. Safety always needs to be our individual choice.
SGRE Representative	A person or persons empowered by SGRE to act on its behalf with respect to ensuring compliance with any and all Contractual or local legal requirements with respect to Health, Safety and Environmental matters.
Zero Energy State	Following a specific procedure, after the Lock Out and/or Tag Out (LOTO) of the Point of Isolation(s) (POI), to release, block, or otherwise safely secure all stored energy sources so they cannot create the potential for injury or accident while servicing or maintenance is being performed on the equipment
Live Working	All work in which a worker deliberately makes contact with live parts or reaches into the live working zone with either parts of his or her body or with tools, equipment or devices being handled
Live Working Zone	Space around live parts in which the insulation level to prevent electrical danger is not assured when reaching into or entering it without protective measures.
Contractor	The Service provider (also referred to as Contractor or Vendor) appointed by SGRE to deliver the scope of the service as defined by SGRE.
Vulnerable Workers	Young People (under 18), Pregnant Women, Lone Workers, Migrant Workers, Newly employed
Offshore Crane	An offshore crane is defined as a crane mounted on an offshore installation and used for on board (lifting operation within the offshore installation) and off board lifts (lifting operation between the offshore installation and a floating unit or the sea). An offshore installation is a structure supported by the seabed or floating unit e.g., vessel, exposed to a marine environment.

## 9 MAJOR CHANGES COMPARED TO LAST REVISION

Date:	Change description:
2022-11-03	Update to S3.12.5, Life Saving Rules, Dropped Objects, S4.1 incorporating minimum content for Lift Plan. Update to S5.2 on Arc Flash PPE requirements