

50HERTZ TRANSMISSION GMBH

Instructions on guaranteeing occupational safety when contracting with external companies for work in the scope of the 50Hertz Transmission GmbH (OAFN) - version of 03/2026

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1. General requirements

The operation of electrical installations sets a high level of requirements relating to occupational safety and environmental protection. This gives rise to special requirements for external companies approved by the installation managers.

Occupational safety and environmental protection have to be taken into account as early as at the time of planning and construction of electrical installations. Workflows have to be organised and coordinated in order to ensure the safe performance of the work and to prevent personal and material risks.

The OAFN is both part of the contract and part of each order and therefore binding for the contractor (CO) and for the subcontractors they use. The OAFN has to be respected during the execution of the work. The CO shall communicate the OAFN to the personnel.

The relevant contractual regulations are the basis for the work performed by external companies in the scope of the transmission grid of 50Hertz Transmission GmbH (hereinafter referred to as the client [CL]). On the basis of the contractual relationship, the authority to issue instructions and the responsibility for the safety of the staff employed by the CO (as well as by the responsible subcontractors) remain those of the CO's management.

1.1 Applicable laws, ordinances and regulations

While executing the contract, the CO is obliged to take into account and to comply with the applicable laws, regulations and safety instructions (such as the Working Conditions Act, the Industrial Safety Regulation, DGUV regulation 1 'Principles of Prevention' and DGUV regulation 3 'Electrical Installations and Equipment'), the relevant DIN VDE standards (such as DIN VDE 0101 and 0105-100), as well as with the generally acknowledged rules on safety and occupational health.

Furthermore, the Offshore Working Hours Ordinance, the provisions of the International Maritime Organization (IMO) and the guidelines of the International Marine Contractors Association (IMCA) and other rules have to be respected during offshore work.

In the event of an evident infringement of these regulations and standards, the CL or any person acting on their behalf is entitled to demand that the work be suspended until normal conditions are restored.

1.2 Work Controller (WC)

Before work starts

- in closed electrical operating areas
- at or on high-voltage overhead lines
- as well as on cables or cable systems

of the operational organisation of the CL designated in the order, the CO appoints a work controller (WC) as well as, if necessary, additional WCs in accordance with the form in question in writing.

The CL must in principle be informed of this (these) person(s) one week before the work starts.

Within the meaning of DIN VDE 01051, the WC can only be appointed if they can at least be considered an instructed person (training no longer ago than 1 year) and has knowledge of the conditions near live installation parts.

With their signature, the CO confirms that the appointed person meets the professional prerequisites mentioned above to work on high voltage installations pursuant to DIN VDE 0105-100. They are obliged to verify these qualifications and to keep relevant proof thereof in the appropriate form (see Chapter 1.4). This evidence shall be provided to the CL upon request.

If the appointed WC is not employed by the CO, but works for a subcontractor appointed by the CO, the obligations mentioned above still remain the CO's and are not affected.

Before starting the work, the WC has to report to the operation controller (OC).

The WC must be able to understand instructions written in German and other instructions by the CL, and to pass on these instructions to their subordinates without any loss of information and enforce them. In justified cases and in mutual agreement, the instruction can take place in English. The corresponding English form shall be used for this.

The CL reserves the right to reject the WC in justified cases.

Before the start of the work in closed electrical industrial premises as well as on cable systems and on overhead lines, the WC is familiarised with the working zone by the OC, who will point out the relevant regulations and operational limits to be respected as well as draw their attention to the possible dangers. They receive a written authorisation or a written Work Order (WO).

The WC has to instruct all their professional subordinates after receipt of the authorisation or WO and subsequently issues the permission to start work.

During the daily work period, the WC has to stay in the vicinity of the work location. The WC ensures that they can be reached by the OCs (for example by mobile phone). The OC shall be informed of a change in WC in due time and requires a new authorisation to be drawn up.

WCs can be charged with the implementation of safety measures at the work location within the meaning of the 5 safety rules as per DIN 0105-100 if certain prerequisites by the on-site OCs are met. The prerequisite for this is that the WC is a skilled person.

All employees that are charged with the implementation of safety measures within the meaning of the 5 safety rules as per DIN VDE 0105-100 by the WC have to be at least instructed persons and explicitly proven to be qualified for these activities. Nevertheless, the use of skilled persons is preferred. The WC shall check the correct implementation of the safety measures before work starts as well as after its interruption.

If work is performed by several groups, a WC shall, in principle, be appointed for each group, but at least one person responsible for site safety (PRSS) shall be appointed.

Defined WC obligations can be delegated to other persons. For this reason, if multiple groups are deployed in a single locally extended work location (e.g. protection against corrosion on overhead lines), a person responsible for site safety (PRSS) can be appointed by the WC for each working (sub)group. This person is responsible for the compliance with the safety provisions for the working zone of their working (sub)group. The WC is responsible for

the working (sub)groups. This approach has to be agreed with the OC in advance and documented by the WC in writing. These documents shall be provided to the CL upon request.

1.3 Person responsible for non-electrical work outside of electrical installations

If all of the following conditions are met, a 'person responsible for non-electrical work' (RNEW) can be appointed for non-electrical work instead of a WC under the conditions described below. This RNEW does not require any electrotechnical knowledge and can be an electrotechnical layperson (ordinary person according to EN 50110-1).

- Approved by the CL.
- No safety measures in application of the 5 safety rules as per DIN VDE 0105-100 are required.
- The 50Hertz installations present no electrical hazard (e.g. through induced voltage).
- The work only take place outside of closed-off electrical industrial premises.
- It is not possible for limbs or work equipment to enter the vicinity zone as per table 103 of DIN VDE 0105-100.

Table 103 of DIN VDE 0105-100	U _N [kV]	Outer vicinity limit distance [m]
	up to 1	1.0
	1 to 110	3.0
	Over 110 through 220	4.0
	Over 220 through 380	5.0

The CL must in principle be informed of this (these) person(s) one week before the work starts in accordance with the form in question.

The RNEW has to make sure that the contractual provisions of the CL, including the OAFN, are complied with in the work location.

The RNEW receives the 'instruction of the person responsible for non-electrical work' from a representative of the RC. The written confirmation of the instruction is a prerequisite for the start of the work. The RNEW shall instruct each of their subordinates after receipt of the instruction.

The RNEW has to remain in the area of the work location during the daily work period and ensure that the CL can reach them (e.g. mobile phone number). Any change of RNEW has to be communicated to the CL in a timely manner.

The RNEW must be able to understand instructions written in German and other instructions by the CL, and to pass on these instructions to their subordinates without any loss of information.

In justified cases and in mutual agreement, the instruction can take place in English. The corresponding English form shall be used for this.

For underground construction work 10 m on either side of the route axis of medium voltage and high voltage cables, a WC must in principle be assigned. More requirements for working equipment, working methods and work organisation have to be coordinated with the competent section of the RC in question.

For underground construction work near submarine cables 25 m on either side of the route, a WC must always be assigned in application of 1.2.

1.4 Personal safety logbook

The CO ensures that all deployed employees can prove all required qualifications on site in a personal safety logbook in accordance with WEG e.V. or DGMK or a digital form of equal value. Furthermore, the conditions in accordance with the 'General Conditions for Work (Allgemeine Bedingungen für Werkleistungen)' of the CL apply.

1.5 Online safety briefing

Anyone entering an installation or construction site of the CL or carrying out work there is obliged to complete and successfully conclude the general EDP-based safety briefing (Gate Instruction) in accordance with the CL's specifications.

Access to the **Gate Instruction** is available via an online portal at <https://uenb.training/home>.

After successful participation, the issued certificate shall be presented to the CL or their authorised representative upon request, e.g. as a printout, a personal safety logbook entry or by means of a QR code. The certificate is valid for one year.

The EDP-based general safety briefing does not replace the site- and activity-specific safety briefing on the specific hazards on site, which can change depending on the construction site and construction progress, nor does it replace the safety briefing by the respective superior.

Exceptions apply to individuals who require access only once or for a brief time and who during this time are supervised and do not carry out work on electrical installations, construction work or other hazardous activities.

1.6 Documentation and proof

Before the start of the work, the CO has to ensure that the following documentation or proof is available where applicable in an appropriate form:

- Risk assessments incl. adequate protection measures for all work and work equipment (e.g. electrical assembly, lifting platform operation, use of manually operated power saws etc.)
- Operating instructions for all relevant work and work equipment
- Proof of first aid training in accordance with Chapter 1.6.
- Proof of all relevant instructions and trainings in the personal safety logbook / instructions record

- Proof of all relevant medical check-ups as per the Working Conditions Act (ArbSchG)
- Letter of assignment for handling and operating work equipment (e.g. lifting platforms, construction machinery and equipment, crane work, etc.)
- Proof that is identifiable on site with regard to the testing of the work equipment that requires inspection, preferably by means of inspection sticker (e.g. CEE construction site distribution, portable electrical equipment, lifting tackles, construction machinery and devices, lifting platforms etc.)

If this proof is not available at the time construction begins, authorisations, WOs or other permissions to start work cannot be issued by the CL. During the construction phase, the documents listed above shall be kept available on the construction site and presented to the CL on site upon request.

Furthermore, a written instruction (e.g. (dis)assembly instruction, termination instruction, process instruction) shall be drawn up by the CO for work with special safety-technical requirements in accordance with DGUV regulation 38 'construction work'.

At the CL's request, these instructions shall be handed over to the CL for perusal.

Special safety-technical requirements for instance apply to the following work:

- Proof of first aid training in accordance with Chapter 1.6.
- Work in accordance with the DGUV Regulation 101-038 "Bauarbeiten" ('Construction work')
- Tower assembly
- Conductor pulling and cable pulling work
- (Dis)assembly work in the vicinity of live parts (distances in accordance with DIN VDE 0105-100)
- Earthworks in the range of influence (e.g. electric and magnetic influences) of electrical installations

Moreover, an earthing concept has to be submitted in case of work inside the range of influence of electrical installations that takes possible induced voltages into account and guarantees safe performance of the work.

For work falling under the scope of DGUV Regulation 3, the CO has to confirm before commissioning that the performed deliveries and services correspond to the mentioned regulations and standards.

1.7 First aid

The CO is obliged to obtain information on the organisation of the rescue chain on site and present their first aid plan to the CL. For the work carried out by the CO, the CO is obliged at all times to organise first aid.

The CO has to ensure that the following number of first aid providers is available:

- if 2 to 20 employees are present, at least two first aid providers,
- if more than 20 employees are present, 10 % of those present.

In consultation with the CL, the above regulation can be deviated from as follows:

- in case of up to 3 present employees of the CO, at least one first aid provider, if another first aid provider of 50Hertz or on behalf of 50Hertz is on site during the entire duration of the work and the compliance with the rescue chain is therefore ensured.

1.8 Working hours

The German Working Hours Act (Arbeitszeitgesetz) and its stipulations apply to

- the admissible daily working hours,
- the breaks,
- the break times between the end of the working hours and the time the activity is resumed,
- night shifts as well as
- the rest time on Sundays and holidays.

In principle, the contractor can freely organise their performance time. However, the applicable operating hours at the client's sites as well as the unanimously agreed completion dates shall be respected. The CL's project management shall be informed of the specific working hours. The CL's use of staff, especially for the performance of switching operations and safety measures, shall also be taken account of.

Working on Sundays and holidays shall only be possible in exceptional cases to be agreed upon. If necessary, the CL shall be provided with the required special permits of the competent state office. The CO is responsible for obtaining the corresponding permits.

For offshore work, the regulations of the most recent 'Ordinance on Working Time in relation to Offshore Work' (Verordnung über die Arbeitszeit bei Offshore-Tätigkeiten, Offshore-ArbZV) apply.

1.9 Coordinator / building inspector

In the event that a coordinator is required to avoid a potential mutual risk, pursuant to section 6 of DGUV regulation 1 or section 3 of the construction site regulation, this coordinator shall be appointed by the CL and be granted the authority to issue instructions. They are entitled to instruct the staff where occupational health and safety are concerned. The risk assessments performed by the CL and CO for the work to be carried out shall form the basis of the coordination of the work.

Furthermore, a building inspector can be employed by the CL. The building inspector's task is to check whether the execution of the construction meets the contractual and quality requirements. The building inspector can be appointed as the proxy of the coordinator with respect to the CL. They represent the coordinator on the construction site during their absence and also have the right to issue instructions to the staff of external companies and the own staff.

1.10 Alcohol, drugs, smoking

The consumption and working under the influence of alcohol, drugs or other intoxicating or psychedelic drugs (e.g. medication with strong side effects) is forbidden in and at installations and on construction sites of the CL. Work may only be started at 0.0 per mill blood alcohol.

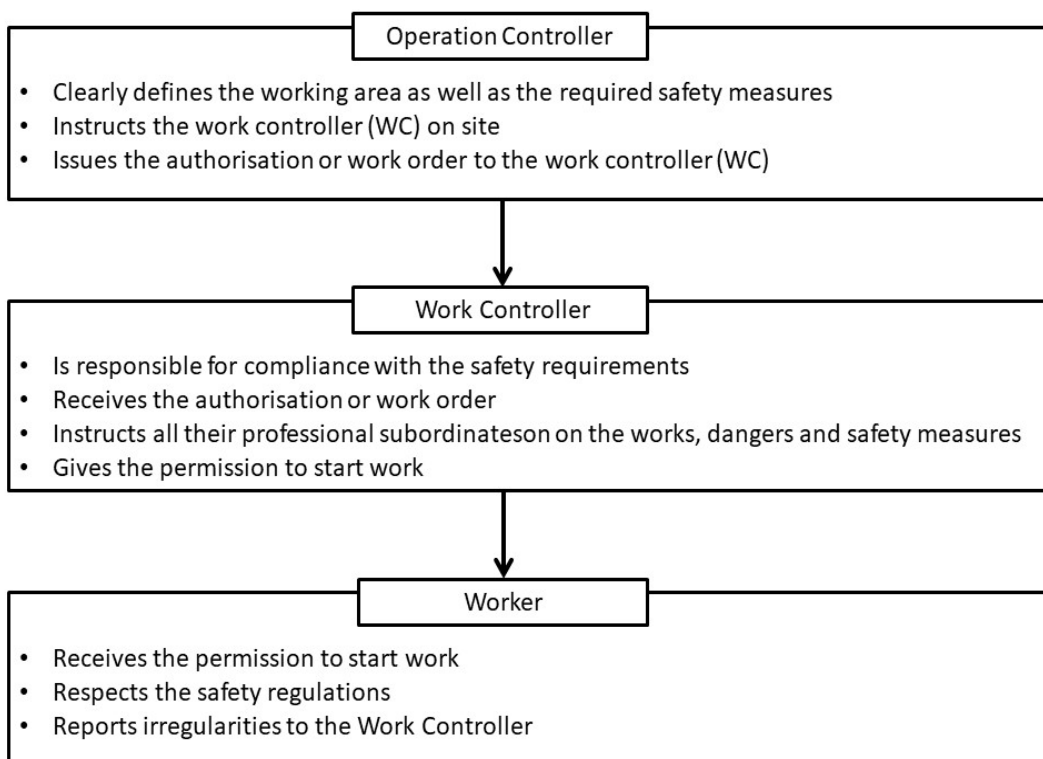
The CO has to immediately remove individuals suspected of being under the influence of alcohol or drugs or other intoxicating substances from the installation or construction site.

Smoking is only permitted in the appointed areas.

1.11 Work in and on electrical installations

All work in or on the grid installations of the CL, irrespective of whether these concern electrotechnical work or not, require an authorisation or WO in order to be performed. A prerequisite for the granting of an authorisation is a corresponding basic briefing of the WC or essential safety-relevant and organisational requirements of the CL for working in or on grid installations of the transmission grid.

The WC has the duty to instruct their employees on the work to be carried out, the local conditions and the possible dangers and is required to document this. The documentation has to be presented to the CL upon request. Commencing work is only permitted after permission to start work by the WC.



In the event of work-related changes, e.g. new working environment, altered working distance to live parts, the instructions must be adapted by the WC.

Before the interruption or end of the work, the safe state of the work location shall be ensured. Electrical lines incl. spare conductors must be insulated in such a manner that touching bare and/or non-insulated line ends in accordance with DIN VDE 0100-520 shall be safely prevented.

1.12 Site fences

Site fence within a closed electrical industrial site

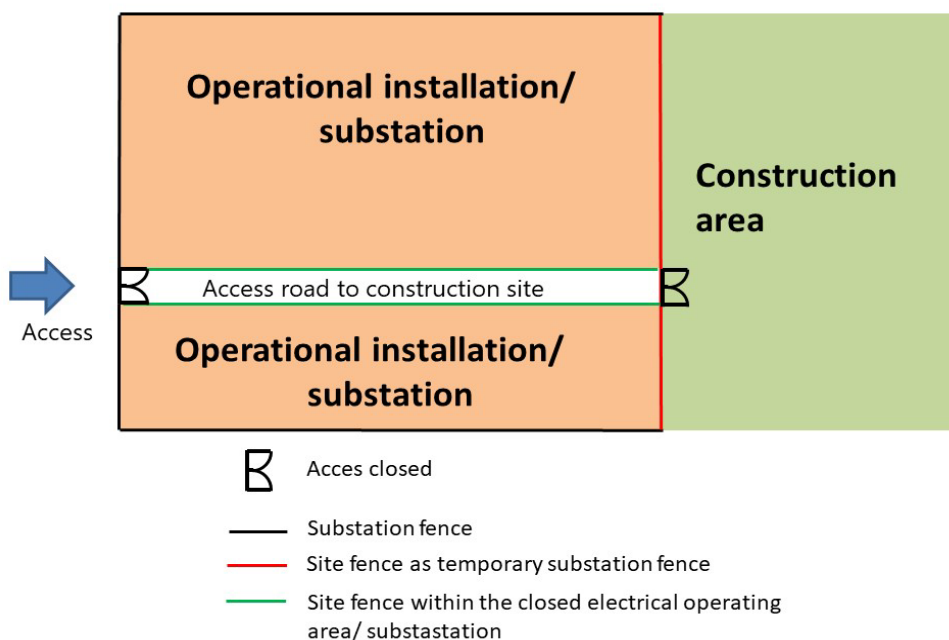
The site fence within an outdoor switchyard is an additional security measure against unplanned crossing of the safety distances as per DIN VDE 0105-100. The height of the site fence has to be at least 1800 mm. The site fence cannot be used as an external installation barrier.

Site fence as temporary installation fence

Substations and electrical operating facilities have to remain closed off and unauthorised access to installations has to be prevented. When using the site fence as a temporary substation fence or installation fence, the requirements of the current DIN EN 61936-1 VDE 0101 have to be met. Safety marking as per the Workplace Ordinance (Arbeitsstättenverordnung, ArbStättV) has to be applied.

Example:

A part of the substation fence must be temporarily replaced. The external substation fence and the site fence as temporary installation fence (shown in red) must meet the requirements of the current version of DIN EN 61936-1 VDE 0101.



1.13 Earthing

All metal elements near electrical facilities such as scaffoldings, site fences etc. have to be earthed in accordance with the currently applicable relevant standards. Furthermore, all mobile working equipment and construction machinery shall be earthed accordingly.

1.14 Personal Protective Equipment (PPE) / Work clothing

The CO's personnel is obliged to wear PPE or work clothing appropriate to the local working conditions and risk level.

Access to construction sites is only permitted with appropriate PPE. In accordance with DGUV regulation 112-991, this includes at least safety shoes of protection category S3 and a hard hat. The complexity and type of work can make additional PPE required, such as safety vests or safety jackets on construction sites.

For work in closed buildings (e.g. operation buildings or GIS rooms), bump caps may be needed if indicated by the risk assessment.

1.15 Wearers of medical implants

People with active medical implants have to be identified to the OC before commencement of the work. A medical clearance for working in high voltage installations pursuant to DGUV regulation 15 'electromagnetic fields' has to be submitted.

1.16 Expectant mothers

According to the recommendation of the Commission on Radiological Protection, expectant mothers should only be exposed to electromagnetic fields as they can occur in everyday life. In principle, expectant mothers cannot be present in operational installations of the CL.

1.17 Incidents that have to be reported

Incidents that are relevant for occupational safety or the environment shall immediately be reported to the OC and the project leader or the regional control room (RCR/TÜP) of the regional centre (RC) or according to a specifically agreed chain. This applies to all incidents with personal injury (occupational accidents), regardless of the severity of the accidents, to near misses with the potential for injury as well as to all incidents of environmental relevance (e.g. contaminations, leaks, limit violations, claims, violations of rules). For each incident, an analysis of the

causes has to be made by the CO. Furthermore, measures to improve occupational safety or environmental protection have to be deduced. The results have to be written down in a detailed accident and incident report as per the CL's instructions and presented to the CL within three working days.

This does not waive the CO's obligation to report the accident to the Employer's Liability Insurance Association etc.

The obligation to report to authorities is determined in consultation with the CL.

2. Work locations

2.1 Entering and leaving substations and switchgear

The substations or switchgear of the CL are entered and left via the monitored main entry gate as well as by the streets and roads indicated during the site briefing.

Any person who wishes to enter or has left an unmanned transformer station or an unmanned switchgear of the CL must report to the operator on duty at the competent regional centre (RCR/TÜP) and sign in or out of the site visitor logbook of their own volition. For a working group, this is done by the WC. The WC can only grant access to employees of their working group.

If properties of partners, such as power plant operators or other grid operators need to be entered, the regulations of the partners shall also be complied with.

2.2 Marking work locations

The limits of the working zone are defined by the OC and the marking, for instance with barriers, signs or flags in accordance with DGUV notification 203-016, is carried out or arranged.

For submarine cable installations, the working zone is designated with mention of the kilometre point, entry into the telemetry system and/or buoys.

The working zone and the marking of the work location cannot be altered independently by the CO. Crossing barriers is not permitted. Outside these limits, no work shall be carried out or preparations for work or transports shall be made.

The WC or the RNEW has to ensure that the work site limits are respected.

2.3 Construction site equipment and traffic

Entering or leaving the construction site is only permitted via the indicated access ways. Instructions have to be given.

The areas for the construction site equipment of the CO are in principle determined by the CL. If there are special requirements for the marking of traffic areas, these have to be separately indicated by the CO in coordination with the OC.

Driving should be done at walking speed and with particular attention. The construction sites cannot hinder or limit the use of traffic areas. Access roads for emergency vehicles such as fire trucks and police vehicles cannot be compromised.

Supplied materials have to be stored securely in the indicated storage areas. If secure storage is not possible, measures to create safe load-bearing capacity have to be agreed with the CL.

Immediately after termination of the work, the entire construction site has to be cleared. The areas have to be restored to their original state after they have been cleared, unless agreed otherwise in the contract.

At least one rescue point has to be determined where first aid materials and fire extinguishers are kept and which serves as a transfer point for rescue vehicles. In principle, the rescue point shall be agreed with the control centre.

2.4 Securing work locations along roads

The CO has to follow the relevant current editions of the 'guidelines for the safety of work locations along roads' (Richtlinien für die Sicherung von Arbeitsstellen an Straßen, RSA) as well as the 'additional technical contract terms and guidelines for securing work areas along roads' (Zusätzliche Technische Vertragsbedingungen und Richtlinien für Sicherungsarbeiten an Arbeitsstellen an Straßen, ZTV-SA). The CO has to obtain all necessary permits from the competent authorities.

Especially when working along or on public roads, the CO has to obtain a traffic regulating order as intended by § 45 (2) of the traffic code (Straßenverkehrsordnung, StVO). A copy has to be provided to the CL upon request.

2.5 Earthworks

For earthworks, the authorisation of the relevant land owner/tenant is necessary. For land owned by the CL, the WC or the RNEW has to request a 'permit for earthworks' from the CL's operational organisation indicated in the purchase order well in time and before the beginning of the earthworks. Earthworks on land owned by the CL are not allowed without a permit.

Before the earthworks start, the CO has to mark the course (location and depth specifications) of underground supply lines on the site. Should the exact course not be known, it has to be determined by the CO by means of cross cuts made through manual excavation or by means of localisation.

We expressly state that the land owner might not always be aware of the type, number and owners of underground supply lines or other media. The 'permit for earthworks' issued by the CL is therefore only valid for their own supply lines, and does not discharge the CO from having to investigate the underground situation by any other means if necessary, or to request information and permits from third parties. Earthworks can only be performed if the CL has given their written permission. On public property, permission has to be obtained from the responsible authorities.

The stipulations of DGUV regulation 38 'construction work' apply for work in pits, trenches or shafts.

For open cable trenches or open cable ducts, safe crossing should be made possible (e.g. passages with three-part side guard on either side).

2.6 Working on raised floors

The safe state of raised floors has to be restored after all work. After changes to their construction, the safe state has to be proven (if need be with calculations or stress tests in accordance with the manufacturer's specifications by appropriate specialist firms). This also applies to cable-pulling work that might affect the structure of raised floors.

2.7 Mobile gas stations

Only admissible and tested mobile gas stations can be used. Mobile gas stations can only be placed on sufficiently fastened surfaces. An extinguishing or oil binding agent has to be kept close at hand. Small leaks cannot enter the soil; adequate preventive measures have to be stipulated for safe tanking. The provisions of Chapter 6 regarding environmental protection shall be complied with.

2.8 Order and cleanliness

The working zones and sanitary facilities have to be kept in an orderly state. If this is not the case, they will be cleaned at the CO's cost.

For working groups with over four employees, including subcontractors, own sanitary facilities have to be provided. The stipulations of ASR A4.1 'sanitary facilities' apply.

3. Use of work equipment

3.1 General

The use of work equipment in and on installations of the CL is only permitted after a risk assessment by the CO. Work equipment has to be suitable and tested for the relevant work. Appropriate proof of testing has to be provided, e.g. test badges on work equipment (see Chapter 1.5 Documentation and proof).

The loan of vehicles, machinery and tools between the CL and the CO can only be authorised within the framework of a contractual agreement.

If sprayers are used, e.g. for cleaning or weed control, the technology used must prevent that the sprayed substance ends up on unit isolations. The safety clearances as per DIN VDE 0105-100 have to be respected.

Electricity can only be supplied to installations and equipment on building and mounting sites at the authorised feeding points in compliance with DGUV notification 203-006. The only authorised movable safety systems are Switched Protective Earth - Portable Residual Current Devices (RCD) with conductor monitoring or conductor identification (SPE PRCD).

3.2 Scaffoldings

The suitability and operational safety of the scaffoldings used (for work, protection or support purposes) has to be monitored by the CO in accordance with DGUV notification 201-011. Instructions for assembly and use as well as

approval notices have to be kept at hand on the construction site. The scaffolding release note has to be attached to the scaffolding in a visible spot to notify users that they can use the scaffolding without risk.

Before each use, the orderly state as well as the correct application have to be ensured by the user of the scaffolding. Only the manufacturer can make modifications to the scaffolding. Sealed-off or defective scaffoldings cannot be used. These have to be permanently taken out of service and visibly marked as such. Chapter 2.12 regarding earthing shall be complied with.

3.3 Vehicles and construction machinery

Every time construction machinery is used (e.g. excavators or telehandlers) within the CL's installations, an instruction and the qualification to operate it are required and have to be proven (e.g. in the personal safety logbook). Any construction machinery used has to be tested and equipped with a valid UVV (accident prevention regulations) test badge. Its use is only allowed with the CL's written assignment.

3.4 Lifting platforms

The recommendations of DGUV notification 208-019 'safe handling of mobile lifting platforms' have to be followed. To prevent ejection, an appropriate restraint system (of max. 1.80 m) should be used against falls from a height when working in baskets of lifting platforms. Only the connection points provided in the work basket by the manufacturer can be used for the admissible number of persons.

A second employee familiar with the operation of the platform has to be present on the ground within hearing distance and in the field of vision.

3.5 Ladders in electrical operating facilities

The recommendations of DGUV notification 208-016 'instructions for the use of ladders and steps' have to be followed. Synthetic ladders should be used for work near live components. The use of ladders from any other material (e.g. aluminium or wood) for selected activities is only possible based on a corresponding risk assessment.

3.6 Power saws

When working with power saws, the required proof of expertise ('power saw permit' as per DGUV notification 214-059) shall be provided. Even for occasional or sporadic use of power saws, a risk assessment and operating instructions are necessary.

For any work with hand-held power saws, appropriate personal protective equipment has to be worn. These at least include: hard hat combination with hearing and face protection, safety gloves, cut protection pants as well as safety shoes with cut protection inserts.

3.7 Electrical equipment

Electrical equipment and installations have to be tested in accordance with DIN-VDE 0100 part 600 before commissioning. The test reports (measurements, visuals, registration formats etc.) have to be submitted in the form agreed on with the CL.

The recommendations of DGUV notifications 203-205 'selection and operation of mobile electrical equipment according to operating conditions' as well as 203-006 'selection and operation of electrical installations and equipment on construction and assembly sites' have to be followed.

The electrical equipment used has to be clearly marked as belonging to category K1 or K2. In case of high mechanical or physical effects (e.g. outdoors), only electrical equipment of category 2 can be used.

In accordance with DGUV notification 203-032, mobile power generators must be labelled 'A', 'B', 'C' or 'D' according to their performance class. The commissioning of mobile power generators of performance classes 'C' and 'D' has to be performed by a skilled person. They determine the supply system (TN, TT etc.) as well as the safety measures. The on-site commissioning tests have to be documented and presented upon request.

If alternating current sockets are used, these must be equipped with a residual current device (RCD) of type B or B+. In principle, these cannot be installed behind RCDs of type A or F.

Single-phase operating equipment can, in principle, be operated with RCD type A or type F. Further explanations on this subject can be found in DGUV notification 203-006.

4. Working with fall hazards

4.1. General

In addition to the risk of falling from work locations at a higher altitude, the risk of people falling also refers to falling from heights or falling through non-load-bearing surfaces. For work with fall hazards, the stipulations of DGUV regulation 38 'construction work' as well as TRBS 2121 'personal risk of falling' apply. Fall protection devices (e.g. barriers, railings or site fences) and fall arrest devices must be designed in such a way that they can absorb and dissipate any occurring forces.

4.2. Fall protection through personal protective equipment (PPE) against falling

The recommendations of DGUV regulations 112-198 'use of personal protective equipment against falling' as well as 112-199 'rescue from high and low places with fall protection equipment' have to be followed. The annual instructions as per DGUV regulations 112-198 and 112-199 have to be proven in the personal safety logbook.

For work on towers and overhead lines, the recommendations of DGUV notification 203-047 'protection against falling during construction and operation of overhead lines' also need to be taken into account.

Appropriate proof of expertise is required for the use of available climbing systems (e.g. lifeline / rail systems). Proof shall be shown to the CL upon request.

It has to be guaranteed that the carabiners cannot be opened inadvertently. For work with fall hazards, Tri-Lock carabiners therefore need to be used in principle.

Work equipment and working materials have to be secured against accidental falls when working at heights.

The necessary rescue equipment has to be provided on site.

5. Fire safety and what to do in case of fire

5.1. General

The general provisions for fire prevention as well as the instructions for on-site fire safety apply. The CO has to coordinate with the CL on the emergency and evacuation plan.

For the heating of installation parts or construction sites with heating units, the CL's permission shall be obtained.

For any building site equipment that has been set up, a sufficient number of tested hand-held fire extinguishers in accordance with the object's fire class shall be provided by the CO.

No pressurised gas cylinders (e.g. oxygen, acetylenes, SF₆) can be stored inside the buildings unless the rooms meet the legal requirements and are released for storage by the CL.

Before separating, welding and cutting operations or other similar thermal processes can take place, the CO has to present a 'permit for work involving fire risks' approved by the Property Insurer Association (Verband der Sachversicherer, VdS 2036). After the approval of the necessary fire safety measures, this permit has to be confirmed by the OCs. Only then can the work be approved.

5.2. What to do in case of fire and other emergencies

In case of fire, gas leaks, explosion hazards as well as other emergencies, the work has to be interrupted immediately. The risk area has to be vacated immediately and personnel has to go to the assembly point. The OC has to be notified without delay. If the OC cannot be reached, the operator on duty at the TUP of the RC has to be informed. The rescue chain has to be respected.

5.3. Prevention of accidental tripping

The CO has to ensure that the work they perform does not accidentally trip fire alarm or extinguishing systems. If work has to be performed that can create dust, smoke or vapour near fire alarms, corresponding permissions to start work have to be obtained from the OC and documented in writing.

6. Environmental protection

6.1. General

Given the environmental regulations as well as the environmental protection guidelines of the CL, detrimental changes to the soil, water, air, habitats and species have to be prevented. Any detrimental changes or harmful contaminations have to be contained immediately, removed as much as possible and immediately notified to the CL in writing.

6.2. Water and soil protection

For all work involving and handling of substances hazardous to water or on installations with substances hazardous to water, adequate care has to be taken. The CO has to particularly ensure preventive measures. These include the safe supply and storage of the substances, and the orderly state of work equipment and devices. Depending on the quantity and properties of the substances, corresponding means of collection and containment have to be provided, such as catchment basins, oil binding agents or oil container booms etc., as well as an emergency service provider if necessary. Before the start of the work, the CL has to be presented with an action plan indicating which preventive measures were implemented.

The pumping or draining of water requires a water law permit and has to be coordinated with the CL. A copy of the authority's consent has to be presented to the CL in time for inspection.

Predefined routes, storage and assembly locations must be observed and kept clean.

Contaminations and damage must be contained and remedied immediately by suitable means. The CL has to be informed without delay.

6.3. Waste disposal and hazardous material transports

In general, the CL, as the producer of the waste, remains responsible for any waste until its final recovery or removal.

Waste is removed via the disposal routes previously approved in the disposal concept. Changes to the disposal routes have to be released by the CL. Hazardous materials can only be transported after coordination and release of the approved carriers by the CL.

6.4. Nature and immission protection

Flora, fauna and their habitats must be protected and treated with care during all work. Damage has to be immediately notified to the CL.

The use of pesticides has to comply with the Plant Protection Act as well as internal regulations (e.g. TRN 36.02.01).

Noise and dust emissions have to be kept to the absolute minimum.

SF₆ is only handled by certified personnel and with the appropriate equipment. After termination of the work, SF₆ containers have to be removed from the construction site.

7. Hazardous substances

7.1. Working materials and hazardous substances

The CO has to comply with the regulations of the Hazardous Substances Ordinance (Gefahrstoffverordnung, GefStoffV). This applies in particular to the provision of information, the risk assessment and corresponding operating instructions for any hazardous substances used. Furthermore, the CO has to regularly instruct their employees on the risks and document this instruction.

For the hazardous substances used, regular substitution has to be proven (testing alternative substances).

All working materials and hazardous substances brought to the site have to be stored in appropriate and clearly labelled containers. Hazardous substances have to be marked with their name, hazard symbol and titles as well as the GHS hazard statements. Hazardous substances can only be provided in the quantities required for the work (for that day/shift). After termination of the work, all hazardous substances brought onto the site by the CO as well as their containers have to be removed again and properly disposed of.

For all working materials and hazardous substances as well as devices containing the hazardous substances, the CO has to provide the current EC safety data sheets under Regulation (EC) no. 1907/2006 on site as a hard or digital copy.

Hazardous substances have to be stored on construction sites in a weatherproof manner. Pressurised gas cylinders (e.g. SF₆) have to be protected against direct sunlight.

The CL has to be informed of all hazardous substances that

- have chronically harmful properties,
- are included in the list of Annex 1 of the Dangerous Substances Directive (67/548/EEC) or the corresponding amending directives,
- have a workplace limit value or a biological limit value or
- are classified as substances hazardous to water.

7.2. Use of alkylate-based petrol

When using hand-held devices and machines where the employee works in the exhaust gas flow, only alkylate-based petrol (e.g. Aspen ®) can be used to reduce health risks.

8. Additional requirements for construction projects on or in electrical installations

8.1. Preparation phase

Before work starts, a construction launch meeting shall be held, during which the planned safety precautions shall be aligned on again and clarified further if necessary.

The necessary safety precautions at the connection points have to be indicated in the project.

Connection points to (primary/secondary) operational components of the installation have to be indicated in the project in accordance with the requirements. The start and end of the assembly and the commissioning, as well as the appropriate testing times have to be agreed on.

The CO and their subcontractors are obliged to make lists of the employees working at the construction sites on a daily basis and to ensure that these lists can be presented upon request.

The CO shall ensure that all employees concerned are aware of and have access to the construction site's documents that are relevant to occupational health and safety.

8.2. Implementation phase, functional tests and commissioning

Dismantling and mounting activities shall be carried out according to an installation schedule (technical and timing requirements) prepared by the CO, taking into account the relevant technology. The safety precautions or measures agreed between the CO and the CL have to be included in the installation schedule.

Work and functional tests performed by the CO shall not have any effect on the installations in operation. Safety measures pursuant to DIN VDE 0105-100 (e.g. for the installation of equipment for earthing and short-circuiting at the work location) can only be carried out by the CO's personnel on installation parts that are not yet connected to system installations in operation, unless expressly stated otherwise in the authorisation.

Before the start of functional tests, all of the CO's services that have not yet been carried out completely, must be bundled and documented in a list of open points in a clear and understandable manner and aligned on with the CL. The CL reserves the right to decline the performance of functional tests because of uncompleted services.

The functional testing programmes agreed between the CO and the CL shall form the basis for the preparation and the implementation of functional tests. Work and functional tests conducted by the CL on installation parts that have not yet been released for operation, can only take place after the approval and in collaboration with the CO.

Applying voltage to installation parts for which the CL has the operational responsibility is only allowed if carried out by the CL's personnel. Exceptions are auxiliary and ancillary installations, if the written consent of the installation manager is available on the basis of an authorisation.

In this context, interdependent yet parallel work has to be coordinated between the CO and the CL in such a way that it remains possible to guarantee safety as well as the timely assembly schedule. The resulting safety

measures have to be agreed between the CO and the CL, and have to be documented in the operating documents (authorisation, construction records and operating log).

Before voltage is applied to electrical equipment for the first time, the assembly personnel has to leave the construction site.

9. Subcontractors

The CO undertakes to inform the contacts appointed by the CL in time and in writing of the planned deployment of subcontractors on the CL's construction sites. They shall ensure that the subcontractors they have contracted with, respect and guarantee the same security standards of this annex.

The CL reserves the right to reject subcontractors in justified cases.

10. Abbreviations and terminology

ArbSchG - Working Conditions Act (Arbeitsschutzgesetz)

Authorisation

The written consent for the performance of the planned work. Only the OC can grant the authorisation to the WC and only the WC can receive the authorisation.

CL – Client

CO – Contractor

DGUV - Deutsche Gesetzliche Unfallversicherung

German Statutory Accident Insurance

Equipment for earthing and short-circuiting

A mobile device in accordance with DIN EN 61230 to earth and short-circuit installation parts.

GefStoffV - Hazardous Substances Ordinance (Gefahrstoffverordnung)

GIS - Gas-insulated switchgear

Instructed person

A person informed and, if necessary, trained by a skilled person in the tasks conferred to them and the possible dangers in case of improper conduct, as well as instructed in the necessary safety precautions and safety measures. (Source: DIN VDE 0105-100:2015-10)

OC - Operation controller

A person charged with the direct responsibility for the safe operation of the electrical installation belonging to the work location during the work activities. (Source: DIN VDE 0105-100:2015-10)

Offshore-ArbZV – (Offshore-Arbeitszeitverordnung)

Ordinance on Working Time in relation to Offshore Work

RC - Regional centre

The regional centres are business locations of 50Hertz Transmission GmbH.

RCD - Residual current device

RNEW - Person responsible for non-electrotechnical work

A person employed by the CO who is appointed in writing using Annex 1 of the OAFN. The RNEW is responsible for compliance with the contractual provisions of the CL, including the OAFN, in the work location. The RNEW does not need to be a skilled or instructed person. The provisions of Chapter 1.3 apply.

PRSS - Person responsible for site safety (Verantwortliche Person für die Sicherheit vor Ort)

This person is appointed by the WC (in accordance with Chapter 1.2) and is responsible for the compliance with the safety provisions for the assigned working zone of their working (sub)group. PRSS are only used for locally extended work locations (overhead lines or cable systems) if multiple working (sub)groups are part of the area of responsibility of a WC.

TRN - Technical guidelines (Technische Richtlinien Netz)

The TRNs contain the design and execution provisions for installations of 50Hertz.

SF6 - Sulphur hexafluoride

UVV - (Unfallverhütungsvorschriften)

Accident prevention regulations

WC - Work controller

A person charged with the direct responsibility for the performance of the work at the work location. If necessary, some of the obligations that are coupled with this responsibility can be conferred to other persons. (Source: DIN VDE 0105-100:2015-10) The provisions of Chapter 1.2 apply. The WC is appointed by the CO in writing in accordance with Annex 1.

WO - Work order

The written consent for the WC, granted by a service provider on behalf of the CL for the performance of work.

Annex 1: Acknowledgement of the OAFN

For the work relating to purchase order _____

Mr/Ms _____

working for company _____

is appointed as work controller (WC) in accordance with Item 1.2 or person responsible for non-electro-technical work (RNEW) in accordance with Item 1.3.

In application of DIN VDE 0105-100, the person appointed above is a
(please check which is relevant)

- Skilled person
- Instructed person
- Electrotechnical layperson (ordinary person according to EN 50110-1).

Place/date

Contractor of the purchase order mentioned above
(Stamp/signature)

The WC/RNEW mentioned above,

Mr/Ms _____

confirms that he/she has completely read and understood the instructions on guaranteeing occupational safety when contracting with external companies for work in the scope of the 50Hertz Transmission GmbH transmission grid (OAFN) in the contractually agreed version and undertakes to comply with the regulations.

If a WC in application of DIN VDE 0105-100 is not required, Items 1.2 and 1.10 can be neglected.

These acknowledgements have to be presented at the place of performance before the beginning of the work.

Place/Date

WC/ RNEW
(Signature)