


Requirement	The Statkraft Way	
Open	<b>Safety Supervisor high voltage (HV) - Leder For Sikkerhet (LFS)</b>	

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## 1 PURPOSE

To address safety regarding work on or in the vicinity of high-voltage equipment.

## 2 SCOPE

These instructions apply to all work on or in the vicinity of high-voltage equipment for which Skagerak Kraft AS (SK) and Statkraft Energi AS (SE) have operational responsibility.

With exception of voltage control, Skagerak Kraft AS and Statkraft Energi AS do not carry out work on live equipment (LW) under their own direction for their own high-voltage equipment (§ 16).


The installations for which an individual may be nominated as a Safety Supervisor High Voltage (SSHV) is regulated through the safety card for high-voltage equipment.

## 3 RESPONSIBILITY

The person nominated as SSHV is responsible that this instruction is followed. The Operations Manager HV shall ensure that activities regulated by this instruction are carried out properly. The Operations Manager HV is responsible for the making and updating of this instruction.

If an SSHV does not feel competent enough to perform his duties as an SSHV for a particular work assignment, he or she shall be obliged to inform the Switching Supervisor of this.

Only the Operations Manager HV has the authority to give deviation permit from this instruction.

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## 4 PROCEDURE

The nominated SSHV must meet requirements accoshall ensure that the work is performed in accordance with the Safety regulations related to the maintenance and operation of electrical installations “Forskrift om sikkerhet ved arbeid i og drift av elektriske anlegg” (FSE 2006) and this instruction. The § refer to FSE 2006.

### 4.1 Validity

This instruction applies to all types of work on disconnected installations (§ 14), in the vicinity of live components (§ 17) and work carried out on live installations (§ 16).

### 4.2 Work planning

The person **nominated** as the SSHV shall ensure that the work is well planned (§ 10), and the planning has to be done together with the Switching Supervisor. Planned safety measures shall be documented on a separate form.

There shall always be a minimum of two people present when work is performed on high-voltage equipment (§ 12).

The planning shall as a minimum cover the following:

- Obtaining information concerning the installation
- Risk assessment
- Assess the risk of electrical input from other external sources
- Choice of work method
- Assessment of necessary equipment
- Assessment of necessary use of personal protective equipment
- Assessment of the qualification requirements for the work team
- Personnel instruction
- A Safe Job Analysis (SJA) shall be performed and confirmed with the Switching Supervisor.

The SSHV shall communicate directly with the Switching Supervisor and all participants in the work team without the use of intermediaries (e.g. interpreters).

Persons to be nominated as SSHV must have a good operational knowledge of the installation, understand its design and operation and be familiar with the installation.


### 4.3 Nomination of SSHV and establishment of safety measures

The person to be nominated as SSHV shall receive notification directly from the Switching Supervisor stating that the installation has been disconnected, and that the necessary safety measures have been established at the disconnection points (§ 14). The SSHV shall ensure that relevant safety measures have been carried out at the disconnected points in consultation with the Switching Supervisor.

The Switching Supervisor shall appoint the SSHV.

The SSHV shall wear a fire-resistant reflective vest or armband marked “Leder for sikkerhet” (Safety Supervisor)

When working on disconnected installations, the SSHV shall ensure that checks are carried out to verify that the installation is electrically dead at the workplace (§ 14).

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The voltage indicator shall be of an approved type, and the indicator shall always be subject to a function check immediately before and after the voltage check in accordance with the user instructions.

The voltage check using the voltage indicator shall be carried out with at least two people present. Check that the insulating rod and voltage indicator are adapted to the current voltage level, undamaged and cleaned before use.

The SSHV shall ensure that necessary earthing and short-circuiting is carried out at the workplace (§ 14). It has to be established earthing, work earthing or marking earthing on all sides of the workplace. It has to be established extra marking earth where there is potential for induction.

Earthing using approved mobile earthing equipment shall be carried out with two people present. The earthing equipment shall first be connected to earth and then to the part of the installation to be earthed. No contact shall be made with the work area until the earthing has been properly attached.

Where it is facilitated for LOTO, LOTO must be used.

SSHV is responsible for locking its safety measures where this is arranged. In addition to Switching Supervisor's lock, SSHV will hang on its lock on a collection cabinet where locks are established by Switching Supervisor (by Switching Assistant)

In high voltage installations team-LOTO is always used, and SSHV hangs its lock on the LOTO-station/key box.

If visible grounding cannot be established, SSHV shall always establish its measures at the disconnection point, including LOTO. In such cases, there are also requirements for LOTO safety, and then end point grounding will become SSHVs grounding.

The SSHV shall determine a safety distance for each individual task at the workplace. See § 5 for definitions of the safety distance and risk distance. The safety distance shall be determined in such a way that no parts of the body, tools or materials get closer to unshielded, uninsulated live parts than the risk distance.

The SSHV shall ensure that barriers to indicate the safety distance is in accordance with § 17.


The SSHV shall also ensure that shields are established against live components when the risk distance cannot be maintained (§ 17). There shall always be a minimum of two people present when such safety measures are established (§ 12).

The SSHV shall inform everyone in the work team of his/her function and give necessary instructions regarding the work. This shall cover the scope of work, delimitations of the workplace, safety measures that have been implemented and permitted work positions.

#### 4.4 Commencement of work

The installation shall be considered as energized until all safety measures have been established and then can only SSHV initiate the work.



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#### 4.5 Work monitoring

The SSHV shall always be responsible for the safety at the workplace and shall monitor the work himself in accordance with § 12. The SSHV can only participate in the work if it is compatible with the SSHV role.

The work shall be suspended or a Temporary Safety Substitute (TSS) appointed if the SSHV has to leave the workplace. The use of a Temporary Safety Substitute (TSS) shall be the exception.

The SSHV shall ensure that the person appointed as TSS possesses the necessary qualifications. The SSHV shall be familiar with Instructions for Temporary Safety Substitute of high-voltage equipment. The TSS shall give his or her consent to the nomination. The nomination shall be documented in writing using the form Nomination of Temporary Safety Substitute. The SSHV shall inform the work team and the Switching Supervisor regarding the nomination of a TSS.

The TSS should preferably be nominated amongst prequalified SSHV. The TSS shall be given any necessary instructions concerning the workplace and all safety measures before the SSHV leaves the workplace.

See also Article 4.11 Guidelines for electrical safety in connection with the use of external personnel.

External personnel should not initially be used as SSHV or TSS in our facilities. Operations Manager considers approval of any external personnel for SSHV in each case. For work in outdoor switch gear plants, TSS from external companies must not be used.

The person nominated as TSS must have a valid safety card. If the work is taking place over several days, the SSHV shall initiate the work at the start of each working day.

The SSHV shall personally notify the Switching Supervisor of any necessary replacement of the SSHV.

#### 4.6 Removal of safety measures

Upon completion of the work, the SSHV must personally inform everyone in the work team that the workplace must now be treated as live (§ 15), and that the safety measures will end in the case of work in the vicinity of live parts (§ 18).


The SSHV ensures the removal of the established safety measures at his own workplace (§§ 15 and 18) before an all-clear notice is issued to the Switching Supervisor. In the case of the removal of earthing, the connection shall first be removed from the installation component and then from the earth. There shall always be a minimum of two people present when safety measures are removed at the workplace (§ 12).

Note that the removal of safety measures from the disconnection point is the Switching Supervisor's responsibility. This is because the Switching Supervisor will have an overview of any other work that may be taking place.

The SSHV shall personally give notification to the Switching Supervisor that the work has been completed and that the workplace is ready for energizing (§ 15). The same shall apply following work in the vicinity of live parts (§ 18).

#### 4.7 Duration, updating and distribution

The instructions shall apply from the date of approval until they are replaced by new instructions, and must be distributed to everyone who are prequalified as SSHV.

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## 5 REFERENCES

### 5.1 Internal references, Skagerak Kraft AS

- 5.1.1 Losen, Kraft, HMS, Elsikkerhet Instruks for el-sikkerhet.
- 5.1.2 Losen, Kraft, HMS, Elsikkerhet Instruks for Leder for Kobling (LFK).
- 5.1.3 Losen, Kraft, HMS, Elsikkerhet Instruks for overvåker i høyspenningsanlegg.
- 5.1.4 Losen, Kraft, HMS, Elsikkerhet Skjema for utpeking av overvåker
- 5.1.5 Losen, Kraft, HMS, Sikkert arbeid Bruk av personlig verneutstyr.
- 5.1.6 Vedlikeholdssystem JobTech, Skagerak Kraft AS.

### 5.2 Internal refernces, Statkraft Energi AS

- 5.2.1 Styrende dokument P-23 Tilsyn – drift og vedlikehold av elektriske anlegg.
- 5.2.2 Styrende dokument P-23/120 Instruks for el sikkerhet.
- 5.2.3 Styrende dokument P-23/140 Instruks for Leder for Kobling (LFK).
- 5.2.4 Styrende dokument P-23/146 Instruks for overvåker i høyspenningsanlegg.
- 5.2.5 Styrende dokument P-23/147 Skjema for utpeking av overvåker.
- 5.2.5 Vedlikeholdssystem Statkraft.
- 5.2.6 Prosess for Arbeidstillatelse i Norge for P
- 5.2.7 Styrende dokument Doc-no 20-2 Isolering av energikilder med LOTO

### 5.3 External references

- 5.3.1 FSE 2006 Forskrift om sikkerhet ved arbeid i og drift av elektriske anlegg.
- 5.3.2 FEF 2006 Forskrift om elektriske forsyningsanlegg.
- 5.3.3 FEK 2013 FEK 2013 Forskrift om elektroforetak og kvalifikasjonskrav for arbeid knyttet til elektriske anlegg og elektrisk utstyr.