


Requirement  Open	The Statkraft Way  <b>Live work</b>	 <b>Statkraft</b>
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## Innhold

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## 1 PURPOSE

To ensure safety when live working on low-voltage installations.

## 2 SCOPE

Applies to all live working on low-voltage installations in Norway where Skagerak Kraft AS (SK) or Statkraft Energi AS (SE) have operational responsibility.

Persons approved as Safety Supervisor LV (SSLV, AFA in Norwegian) and Safety Supervisor LV Nominator (those who appoint AFAs) are regulated through safety cards for electrical installations.

## 3 RESPONSIBILITIES

The person who is appointed SSLV is responsible for compliance with these instructions. The Operations Manager shall ensure that activities regulated by these instructions are carried out appropriately.

The Operations Manager LV is responsible for the preparation and updating of these instructions.

Only the Operations Manager LV has the authority to give deviation permit.

## 4 DESCRIPTION OF THE PROCEDURE

The appointed SSLV shall ensure that the work is carried out in accordance with the Norwegian Regulations on safety in connection with work on and operation of electrical installations (FSE 2006) and this document. The section numbers (§) refer to FSE 2006 .

### 4.1 Validity


This instruction applies to all types of live working on low-voltage installations (§ 16).

### 4.2 About live working

Every effort should be made to avoid live working. If disconnecting the installation creates major inconveniences for operations, then live working may be used as a working method.

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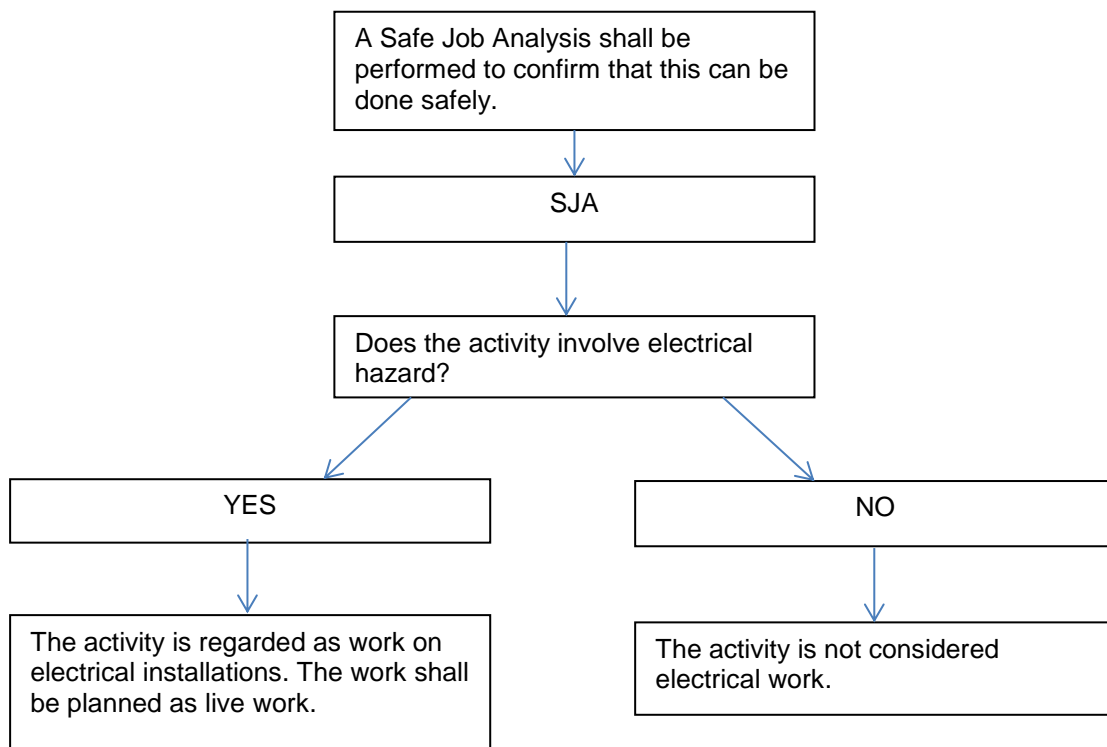
There must be at least two people present at Live works, unless a risk assessment indicates that SSLV can do the work alone without danger. (Eg. simple measurement of voltage in the electrical outlet using isolation gloves, measuring instrument minimum cat 3 with insulated measuring pins, helmet with visor, etc.).

By troubleshooting, testing, measurement and refilling of water in battery installations a SJA shall be performed to confirm that this can be done safely.

Extra care must be taken to non-isolated batteries.

SJA shall always be performed by a person with electrical expertise. Additional work on battery installations shall always follow the procedure for live working.

Flowchart for further reviews for troubleshooting, testing and measurement of low voltage equipment and refilling of water on battery installations.




### 4.3 Qualifications

For live working, at least one person must be an electrical skilled worker, and everyone in the work crew must have adequate training in live working. The training must be documented.

### 4.4 Planning

In conjunction with the SSLV Nominator and the job's planner, the SSLV must ensure that the plan is consistent with performance of the work (§10). A safe job analysis (SJA) must be performed before work starts.

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The work must be performed in accordance with approved methods and relevant work instructions; see § 16 in the Safety regulations related to the maintenance and operation of electrical installations (FSE 2006). This means that a work description must be prepared for each individual task based on the work method selected.

#### 4.5 Safety measures

For live working, two safety barriers must always be established. The live working procedure must ensure that personnel do not come in contact with energised parts and that no earthing or short-circuit is established with tools or materials. This is to be achieved by establishing the following safety barriers:

Personal protective equipment: Insulating gloves, clothing, footwear, hardhat and visor.  
Equipment protection: Totally insulated or operationally insulated tools.

Insulating covers with clips are to be used for shielding non-isolated energised parts that are not being worked on and which parts of the body or tools could come into contact with (above, below, to the sides).

For live working, the job planner must ensure that an extra risk assessment is performed before the work is started with regard to whether there are other hazardous energised parts nearby. If there remains a risk after the planned safety barriers have been established, or there is doubt about this, such energised parts must be shielded or else a method for working on disconnected installations must be used.

#### 4.6 Establishing safety measures

Wearing personal protective equipment.  
Shielding of all energized parts that are not being worked on.  
Only totally insulated or operationally insulated tools may be used. Handle-insulated tools are not permitted.

Measuring instruments shall as a minimum be of category 3.

#### 4.7 Removal of safety measures

Removal of tools and equipment etc.  
Removal of all shielding.  
Cleaning insulating covers after use.