

Procedure for voltage testing

Approved by: Arnfinn Granheim

Document holder: Operations Manager

Based on the Norwegian document number 2634309 rev. 3

Document number: 2634329 rev. 3

Date: 01.01.2020

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1 Governing policy and legislation

The procedure for voltage testing is superseded by Funksjonspolicy for elsikkerhet (Functional Policy for Electrical Safety). They are a supplement to, and superseded by FSE 2006 (Safety regulations related to the maintenance and operation of electrical installations) which is pursuant to the "Lov om tilsyn med elektriske anlegg og utstyr" (Act relating to the Inspection of Electrical Installations and Electrical Equipment).

2 Purpose and Validity

The purpose of this procedure is to avoid accidents, health and material damage when voltage testing.

This procedure applies when work **on, or in the vicinity of, earthed and short-circuited installations** and to all electrical installations where Statnett has operational responsibility.

3 Intended audience

All personnel who intend to perform voltage testing at installations where Statnett has the operational responsibility.

4 Definitions

Operations Manager HV (high-voltage): Person appointed by the owner/manager to carry out and be responsible for the ongoing management and maintenance of high-voltage electrical installations.

Operations Manager LV (low-voltage): Person appointed by the owner/manager to carry out and be responsible for the ongoing management and maintenance of Low-voltage electrical installations.

Switching Supervisor: Person appointed to have responsibility for ensuring that all necessary switching operations in high-voltage installations are conducted safely.

Safety Supervisor HV (high-voltage) (SSHV): Person appointed to have responsibility for electrical safety at the worksite.

Working place: Positions where it's a risk that personal/equipment can come inside or in danger to come inside the risk distance given current system voltage, ref FSE §5, table 1

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5 Voltage testing

5.1 Responsibility Switching Supervisor (LfK)

Planning and executing switching operations is conducted in accordance with Instructions for the Switching Supervisor

The installation part(s) is(are) disconnected, terminal earth established and secured against re-connection (MSI) in both/all ends according to Instructions for the Switching Supervisor.

5.2 Methods for voltage testing

5.2.1 Method 1:

When Safety Supervisor High Voltage (SSHV) is appointed by Switching Supervisor (LfK) it can be tested with an approved voltage indicator in accordance with NEK EN 61243-1, -2, -3 or -5, who has a valid sticker, and check that the equipment is in satisfactory condition in accordance with the user manual.

At voltage testing there must be at least two persons present, at least one of them must be approved as SSHV on, or in the vicinity of, earthed and short-circuited installations. For the other person, an **access permit** to the installation is required (ref. Instructions for training/access/safety cards to Statnett's electrical installations) and fully qualified or approved for the task by the Directorate for Civil Protection (DSB) is mandatory.

5.2.2 Method 2:

This method can only be used on transmission line constructions provided established terminal earth in both/all ends of the transmission line. With this method, the actual voltage testing is to get a confirmation that terminal earth is established in both/all ends of the transmission line.

It must be checked by two persons that the name of the transmission line is according to the information provided by the Switching Supervisor. In addition to SSHV, the name of the transmission line must also be checked by another person. For the other person, an **access permit** to the installation is required (ref. Instructions for training/access/safety cards to Statnett's electrical installations) and fully qualified or approved for the task by the Directorate for Civil Protection (DSB) is mandatory. The tower number must be written down.

6 Abstinence from intoxicants

Persons participating in the work must agree to refrain from consuming alcohol or other intoxicants during the 8 hours prior to starting work.

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7 Confirmation of compliance

The responsibility for checking compliance with instructions lies with the document holder and approving body.

The position of Operations Manager HV includes authority to draw up and approve work procedures, guidelines and instructions in areas covered by Funksjonspolicy for elsikkerhet (Functional Policy for Electrical Safety – Norwegian document only).

8 Enclosures and references

References:

- Funksjonspolicy for elsikkerhet (Functional Policy for Electrical Safety – Norwegian document only) (SDOK-515-2)
- Instructions for the Switching Supervisor (doc.no. 1198606 in IFS)
- Instructions for the Safety Supervisor HV (doc.no. 1198675 in IFS)
- Instruction for training/access/safety cards to Statnett's electrical installations (doc.no. 1251620 in IFS)
- Procedure for communication between the Safety Supervisor and the Switching Supervisor (doc.no. 2110202 in IFS)
- Safety regulations related to the maintenance and operation of electrical installations (FSE 2006) (www.dsb.no)
- Lov om tilsyn med elektriske anlegg og utstyr (Act relating to the Inspection of Electrical Installations and Electrical Equipment) (www.lovdatab.no)

9 Version log

Valid as of	Revision classification (New/Updated/Vocabulary/None)	Description of important changes
01.01.2020	Updated	<p>Changed approval and document holder to one Operations Manager.</p> <p>5: Made the procedure applicable for all installations, and not only transmission lines.</p> <p>5.1.1: Added that the voltage indicator must have a valid sticker, and that it also must be checked that the equipment is in satisfactory condition in accordance with the user manual. Added that person number two must be fully qualified or have been approved for the task by the Directorate for Civil Protection (DSB).</p> <p>5.1.2: Removed that a remote electric field detector can be used, because it is not a requirement. Added that person number two must be fully qualified or have been approved for the task by the Directorate for Civil Protection (DSB).</p>