

Requirement Internal	The Statkraft Way Risk assessment - Declaration of conformity - Reporting to Transmission System Operator	 Statkraft
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1 PURPOSE

The purpose is to ensure that all types of electrical installations where Skagerak Kraft AS or Statkraft Energi AS has Operations Manager HV/LV, are planned, risk assessed, constructed/refurbished, operated and maintained in compliance with statutory regulations and in-house instructions and procedures.

The requirement shall also ensure that new and refurbished electrical installations are checked and functionally tested before commissioning, and that there is a declaration of conformity for the engineering and construction.

2 SCOPE

The requirement applies to electrical installations in Norway for which the companies Skagerak Kraft AS or Statkraft Energi AS has Operations Manager HV/LV.

The requirement applies to:

- engineering, risk assessment, construction and commissioning of new installations
- changes/extensions to existing installations

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The requirement applies to installations, work or activities comprised by:

- FEF 2006 Forskrift om elektriske forsyningsanlegg (Regulations on electrical supply installations.) *
- FEL 1998 Forskrift for elektriske lavspenningsanlegg (Regulations on electrical low-voltage installations.) *
- FSE 2006 Forskrift om sikkerhet ved arbeid i og drift av elektriske anlegg (Safety regulations related to the maintenance and operation of electrical installations.)
- FEK 2013 Forskrift om elektroforetak og kvalifikasjonskrav for arbeid knyttet til elektriske anlegg og elektrisk utstyr (Regulations for electrical enterprise and demands for qualifications related to electrical installations and equipment.) *

* Only in Norwegian.

3 RESPONSIBILITY

- Owners/operators of electrical installations, through their operations managers, shall ensure that installations comprised by the FEF 2006 (electrical supply installations) and FEL 1998 (electrical low-voltage installations) regulations meet the applicable requirements at all times.
- Anyone delegated responsibility for engineering and/or installations alterations must comply with these instructions.
- The Operations Managers HV/LV are responsible for following up and revising this requirement.
- Only the Operations Manager HV/LV have the authority to give deviation permit from this requirement.

4 RISK ASSESSMENT BEFORE AN ELECTRICAL INSTALLATION IS BUILT OR REFURBISHED/ALTERED/EXTENDED

Before building, refurbishing or changing an installation comprised by the (FEF 2006) regulations on electrical supply installations, it must be documented that risks in and associated with the electrical installation have been identified (§2-2). The risk assessment must form a basis for the choice of solutions. Operations Manager HV/LV shall be consulted at an early stage in the process to be given the possibility to influence on solutions.

Similarly, the FEL 1998 regulations impose requirements on planning and risk assessment in installations comprised by these regulations.

Risk assessment in Statkraft Energi AS is performed in accordance with guideline P-23/172 Risk assessment for building and altering electrical installations in Skagerak Kraft AS and Statkraft Energi AS.

Risk assessments must be performed and documents for new installations and refurbishments. Alterations, component swaps and similar that entail changes in documentation require risk assessment.

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5 PROCEDURE FOR NEW CONSTRUCTIONS OR EXTENSION/ALTERATION TO INSTALLATIONS

5.1 Requirement for technical expertise and verification of deliveries

Operation Managers HV / LV are obliged to ensure that the applicable regulations are adhered in all phases of a project.

In cases where the planning and project design are performed by someone other than Operation Managers HV/LV, the person is obliged to ensure that this work satisfies applicable regulations.

Activities on or near electrical installations must be planned and risk-assessed and carried out in compliance with safety regulations for working on and operating electrical installations, as well as the electrical safety instructions for Skagerak Kraft AS and Statkraft Energi AS.

5.2 Activities where project planning and/or construction are done through a hired (authorised) installer

The project manager or other person responsible for the work is responsible for requirements given in FEF, FSE, FEK and FEL to be met. This means:

1. Item 5.1 is properly provided for, and the technical expertise requirement per FEK 2013 is ensured.
2. A risk assessment in compliance with item 4 (P-23/172) has been performed and is available, so that risk associated with the new or refurbished electrical installation has been identified before execution of the work. The risk assessment shall provide a basis for chosen solutions and must be documented.
3. Item 5.5 regarding checking of new or refurbished installations prior to commissioning shall be properly ensured.
4. When different suppliers perform engineering and construction, a declaration of conformity also for the engineering works shall be supplied.
5. When the same supplier performs both engineering and implementation, a joint declaration of conformity can be used.
6. Signed risk assessments and declarations of conformity shall be filed in a physical archive and in the electronic maintenance system.
7. Declarations of conformity shall be present at takeover.
8. Additional documentation from inspections, tests and commissioning, in addition to technical documents, shall be present no later than 12 months after energizing.
9. Checklist to declarations of conformity (P-23/171) shall after reviewing be signed as a part of the final inspection.

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5.3 Activities where project planning and/or construction are done using own (in-house) resources

The project manager or other person responsible for the work is responsible for requirements given in FEF, FSE, FEK and FEL to be met. This means:

1. Item 5.1 is properly provided for, and the technical expertise requirement per FEK 2013 is ensured.
2. A risk assessment in compliance with item 4 (P-23/172) has been performed and is available, so that risk associated with the new or refurbished electrical installation has been identified before execution of the work. The risk assessment shall provide a basis for chosen solutions and must be documented in the form: *"Risk assessment for building and altering electrical installations in Skagerak Kraft AS and Statkraft Energi AS"*.

This document is located as follows: Skagerak Kraft AS: Fyret

Statkraft Energi AS: Governing Documents

3. Item 5.5 on the checking of new or refurbished installations prior to commissioning shall be properly ensured.
4. The person responsible for technical performance of the work prepares a declaration of conformity that the installation has been built and delivered in compliance with applicable regulations, standards and defined risk once the building/alteration has been completed.
5. If only engineering is performed in-house, a declaration of conformity for the engineering works shall be supplied.
6. When both engineering and construction are performed in-house, a joint declaration of conformity can be used for both parts. The declaration of conformity is to be completed using the form: *"Declaration of conformity for engineering and implementation of high and low voltage installations in Skagerak Kraft AS and Statkraft Energi AS"*.
7. Signed risk assessments and declarations of conformity shall be filed in a physical archive and in the electronic maintenance system.
8. Declarations of conformity shall be present at takeover.
9. Additional documentation from inspections, tests and commissioning, in addition to technical documents, shall be present no later than 12 months after energizing.
10. Checklist to declarations of conformity (P-23/171) shall after reviewing be signed as a part of the final inspection.

5.4 Activities that trigger a requirement for a declaration of conformity

A declaration of conformity must be issued for new installations and refurbishments. Alterations, component replacement and similar that cause changes in documentation, require a declaration of conformity.

For many identical small jobs, a declaration of conformity needs to be written for the specific installation, not for the whole framework agreement.

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5.5 Checking of installation before commissioning

1. It is not permitted to put into operation a new or refurbished installation before it has been documented that the installation has been inspected, functionally tested and approved for operation.
2. A programme for inspection, functional testing, commissioning etc. must be prepared in advance and comply with §3-1 of FEF 2006 Regulations on electrical supply installations or §12 of FEL 1998 Regulations on electrical low-voltage installations.

Documentation from items 5.5.1 and 5.5.2 must be signed by the manager responsible for commissioning and filed in the project archive/electronic maintenance system.

5.6 Takeover of electrical installation

1. Operations Manager HV/LV shall be invited to takeover from contractor to operational organisation ahead of takeover (no less than four weeks before takeover).

6 REPORTING TO TRANSMISSION SYSTEM OPERATOR (STATNETT)

The Project Manager, Plant Manager or other person responsible for the work, shall ensure that reporting is done in accordance with the Regulations on Transmission System Operation (FoS) §14 Fosweb):

1. The Transmission System Operator is informed of plans for new installations or alterations to installations connected to the regional and central grids when this affects other licensees. Commissioning may only be performed after a decision has been made by the Transmission System Operator.
2. Which technical factors are relevant to a decision and which must accordingly be reported to the Transmission System Operator may vary and depend on the individual installation's position in the power system. The scope of FoS §14 is discussed in FIKS Chapter 1.3. In case of doubt, the Transmission System Operator should be contacted to clarify whether a decision is necessary before commissioning takes place.
3. Planned changes must be notified well in advance of commissioning, so that commissioning does not have to be deferred because of requirements from the Transmission System Operator for changes in the technical solutions. Information about procedures and contacts details is in FIKS Chapter 1.4.
4. Statnett has set up a special web page for reporting installation data. This page contains templates for registering data. They can be downloaded in Excel format and the completed form uploaded electronically. In general, one report per geographical location (station) should be submitted, so that, for example, two transformers in the same station can be registered and uploaded in one template file.

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7 REFERENCES AND DEFINITIONS

7.1 Internal references, Skagerak Kraft AS

7.1.1 Losen, Power, HSE, Electrical Safety, Guidelines on electrical safety	7.1.1 Losen, Kraft, HMS, Elsikkerhet Instruks for el-sikkerhet.
7.1.2 Losen, Power, HSE, Electrical Safety, Inspection and control of low voltage installations	7.1.2 Losen, Kraft, HMS, Elsikkerhet Inspeksjon og kontroll av lavspenningsanlegg
7.1.3 Losen, Power, HSE, Electrical Safety, Form for declaration of conformity	7.1.3 Losen, Kraft, HMS, Elsikkerhet Skjema for samsvarserklæring.
7.1.4 Losen, Power, HSE, Electrical Safety, Risk assessment for construction and refurbishment of electrical installations	7.1.4 Losen, Kraft, HMS, Elsikkerhet Risikovurdering for bygging og endring av elektriske installasjoner
7.1.5 Losen, Power, HSE, Electrical Safety, Report to DSB regarding electrical installations.	7.1.5 Losen, Kraft, HMS, Elsikkerhet Melding til DSB om elektriske anlegg
7.1.6 Jobtech Maintenance system, Skagerak Kraft AS	7.1.6 Vedlikeholdssystem JobTech, Skagerak Kraft AS.

7.2 Internal references, Statkraft Energi AS

7.2.1 Governing document P-23 Inspection – operation and maintenance of electrical installations	7.2.1 Styrende dokument P-23 Tilsyn – drift og vedlikehold av elektriske anlegg
7.2.2 Governing document P-23/120 Guidelines on electrical safety	7.2.2 Styrende dokument P-23/120 Instruks for el sikkerhet
7.2.3 Governing document P-23/171 Form for declaration of conformity	7.2.3 Styrende dokument P-23/171 Skjema for Samsvarserklæring
7.2.4 Governing document P-23/172 Risk assessment for construction and refurbishment of electrical installations	7.2.4 Styrende dokument P-23/172 Risikovurdering for bygging og endring av elektriske installasjoner
7.2.5 Governing document P-23/173 Report to DSB regarding electrical installations	7.2.5 Styrende dokument P-23/173 Melding til DSB om elektriske anlegg
7.2.6 Governing document 17-15 Fosweb – roles and responsibility	7.2.6 Styrende document 17-15 Fosweb – roller og ansvar
7.2.7 Maintenance System Statkraft Energi AS	7.2.7 Vedlikeholdssystem Statkraft Energi AS

7.3 External references

7.3.1 FSE 2006 Regulation on safety in connection with work in and operation of electrical installations	7.3.1 FSE 2006 Forskrift om sikkerhet ved arbeid i og drift av elektriske anlegg
7.3.2 FEF 2006 Regulation on electrical supply installations	7.3.2 FEF 2006 Forskrift om elektriske forsyningsanlegg
7.3.3 FEL 1998 Regulation on electrical low-voltage installations	7.3.3 FEL 1998 Forskrift om elektriske lavspenningsanlegg
7.3.4 FEK 2013 Regulations on qualifications for electrical professionals	7.3.4 FEK 2013 Forskrift om elektroforetak og kvalifikasjonskrav for arbeid knyttet til elektriske anlegg
7.3.5 FoS 2002 Regulations on System Operation	7.3.5 FoS 2002 Forskrift om systemansvaret
7.3.6 FIKS Functional requirements in the power system	7.3.6 FIKS Funksjonskrav i kraftsystemet

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7.3.7 BFK Beredskapsforskriften (Emergency preparedness regulations)	7.3.7 BFK Beredskapsforskriften
7.3.8 Reporting of installation data to Statnett's operational data division	7.3.8 Innmelding av anleggsdata til Statnetts driftsdatakontor (DDK)