Wind turbines

Regulatory requirements for installation

Guideline

Who we are

Energy Safe Victoria (ESV) is the independent technical regulator responsible for gas, electricity and pipeline safety in Victoria. ESV's objectives include ensuring the electrical safety of electrical generation systems and electrical installations. ESV monitors and enforces compliance with the *Electricity Safety Act 1998* (ESA), Electricity Safety (General) Regulations 2019 (ESGR) and Electricity Safety (Registration and Licencing) Regulations 2010 (ESRLR).

Introduction

Wind turbines (including the tower structure) have been installed in Victoria since the mid-1980s. There are approximately 2,300 turbines across Victoria, with more proposed. This document clarifies ESV's compliance expectations from the ESA, ESGR and the ESRLR with regards to the installation of wind turbines.

Compliance requirements

Installation

Wind turbines are electrical installations. They consist of electrical equipment which is assembled onsite. Portions of the electrical equipment which form the installation may be pre-wired before arrival to site.

The installation is required to comply with the Regulations as well as AS/NZS 3000:2018 Wiring Rules.

Exemptions may be applied for under 701 of the ESGR.

A Voluntary Electricity Safety Management Scheme (VESMS) may be applied for to operate the installation under section 115 or section 116 of the ESA.

Section 3 of the ESA defines installations and electrical equipment as follows:

- an electrical installation means "electrical equipment that is fixed or to be fixed in, on, under or over any land"
- electrical equipment is "any appliance, wire, fitting, cable, conduit or apparatus that generates, uses, conveys or controls (or that is intended to general, use, convey or control) electricity".

The ESGR applies AS/NZS 3000:2018 **and** provides further clarity by defining "Electrical equipment installed for the purposes of conveyance, control, measurement or the use of electricity where electricity is or is to be supplied for consumption" to be an installation. This includes "electrical equipment supplied from a distributor's system or a private generating system."

Electrical licence requirements to carry out installation work

On site, the installation work and electrical connections (including installation couplers) on the wind turbines is a prescribed class of electrical installation work and must be carried out by licensed electrical workers.

The ESRLR states:

> *Regulation 5 Prescribed classes of electrical installation work*
>
> *"For the purposes of Division 1 of Part 3 of the Act, a prescribed class of electrical work is the installation, alteration, repair or maintenance of an electrical installation ordinarily operated-*
>
> *(a) At low voltage or a voltage exceeding low voltage in any area; or*
>
> *(b) At any voltage in a patient area."*

Electrical Installation work, including the making of electrical connections within an installation, carried out by persons without an electrical licence is an offence under the ESA.

Section 38 of the ESA states:

> *"A person must not carry out or offer to carry out or hold out that the person carries out or is willing to carry out any class of electrical work that, under the regulations, is a prescribed class of electrical work for the purposes of this Division unless the person is-*
>
> *(a) Licenced under this Division as an electrical installation worker in respect of electrical installation work of that class;"*

AS/NZS 3000 defines an installation coupler as "A connecting device, in accordance with AS/NZS 61535, consisting of an installation socket and an installation plug designed for permanent connection and not intended to be engaged or disengaged under load."

Certification requirements

Certificates of Electrical Safety (COES) are required for electrical installation work.

A certificate of inspection is required for prescribed electrical installation work.

Each turbine is an individual installation for the purposes of certification and identification.

Where generators are connected to the installation for any reason - including construction - the full requirements for compliance and certification of the generator system must be met.

Section 45A of the ESA states:

> *"(1) The person who is responsible for the carrying out of electrical installation work must in accordance with this section—*
>
> *(a) ensure that a certificate of electrical safety is completed in respect of that work; and*
>
> *(b) within the required time—*
>
> *(i) give the completed certificate of electrical safety in respect of that work to the person for whom the work was carried out; and*
>
> *(ii) give a copy of that certificate to Energy Safe Victoria."*

And;

> *"(2) A certificate of electrical safety must contain—*
>
> *(a) a certificate of compliance completed under section 44 for the installation work by the licensed electrical installation worker who carried out the work; and*
>
> (b) *in the case of prescribed electrical installation work, a certificate of inspection of the installation work completed under section 45 by a licensed electrical inspector."*

In addition, regulation 249 of the ESGR states:

"*Electrical installation work that must be inspected*

> *(1) For the purposes of section 45 of the Act, prescribed electrical installation work means work on all or part of any of the following electrical installations if they are ordinarily operated at low voltage or a voltage exceeding low voltage—*
>
> *(f) electricity generation systems including any wiring systems, switchgear, control gear or accessories installed to provide control or protection to those generation systems (excluding stand-alone power systems with a power rating"*

Owner and operator responsibilities

The ESGR require owners and operators to **ensure** "the complex electrical installation or the installed, altered, repaired or maintained portion of the complex electrical installation complies with Divisions 1 to 10 of Part 2" of the Regulations**.**

Further information

For information on electricity safety legislation, contact ESV on (03) 9203 9700 or visit our website www.esv.vic.gov.au.

References

- Electricity Safety Act 1998
- Electricity Safety (General) Regulations 2019
- Electricity Safety (Registration and Licencing) Regulations 2010
- AS/NZS 3000 Wiring Rules

Document information

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