

ISO Rules

Part 500 Facilities

Division 503 Technical & Operating Requirements

Section 503.8 Transmission Step-Up Transformer



Applicability

- 1 Section 503.8 applies to:
 - (a) the **legal owner** of a **generating unit, aggregated facility, or energy storage resource** that is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat, including a **generating unit, aggregated facility, or energy storage resource** situated within an industrial complex that is directly connected to the **transmission system**.

Requirements

Transmission System Step-Up Transformer

2(1) The **legal owner** must ensure that the capability of the **transmission system** step-up transformer for the **generating unit, aggregated facility, or energy storage resource** is such that the **real power** and **reactive power** requirements specified in Section 503.2 of the **ISO rules, Maximum Authorized Real Power and Maximum Authorized Charging Power** and Section 503.3 of the **ISO rules, Reactive Power**, are fully available throughout the continuous operating voltage range for the **generating unit, aggregated facility, or energy storage resource**.

(2) The **legal owner** must consider the following factors in determining the capability of the **transmission system** step-up transformer under subsection 2(1):

- (a) the thermal capability of:
 - (i) bushings;
 - (ii) windings; and
 - (iii) the tap changer;
- (b) the voltage ratio;
- (c) the tap changer type;
- (d) the tap changer range; and
- (e) any other components that may limit the thermal capability of the **transmission system** step-up transformer.

(3) The **legal owner** may, to meet the requirements of subsection 2(1), subtract the amount of auxiliary load in **apparent power** from the **apparent power** capability of the **generating unit, aggregated facility, or energy storage resource** at the **maximum authorized real power**, but only if any of the auxiliary **system load** is connected between the **generating unit, aggregated facility, or energy storage resource** and the low side of the **transmission system** step-up transformer.

(4) The **legal owner** must ensure that the **transmission system** step-up transformer winding connections for the **generating unit, aggregated facility, or energy storage resource** provide for:

- (a) a favourable circuit to block the transmission of harmonic currents;
- (b) isolation of **transmission system** and low voltage side ground fault current contributions;
- (c) an effectively grounded wye connection on the high voltage side of the transformer;
- (d) on-load or off-load tap changers with a minimum capability of plus or minus 5% voltage range in 2.5% increments.

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Revision History

Date	Description
2024-04-01	Initial release.