Information Document
FAC-008-AB-3 Facility Ratings
ID #2017-004RS

Information documents are not authoritative. Information documents are for information purposes only and are intended to provide guidance. If there is a discrepancy between an information document and any authoritative document[1] in effect, the authoritative document governs.

1 Purpose

This information document relates to the following authoritative document:

- Alberta Reliability Standard FAC-008-AB-3, *Facility Ratings* ("FAC-008-AB-3").

The purpose of this information document is to provide clarity to legal owners on the applicable facilities, ratings, and responsibilities as outlined in FAC-008-AB-3; and NERC FAC-008 guidance information.

2 Effective Date

As set out in FAC-008-AB-3, the legal owner was responsible for meeting 2 effective dates, 1 for its existing facilities and 1 for its new facilities. These effective dates have now passed. As of January 1, 2020, each legal owner is required to meet the applicable requirements as set out FAC-008-AB-3 regardless of when its facilities were energized.

3 Applicable Ratings

Pursuant to requirements R1, R2, and R3 of FAC-008-AB-3, each legal owner is expected to have documentation for determining the facility ratings of its facilities and methodology for determining the facility ratings of its facilities, at minimum, that are indicated by facility type in Table 1.

Table 1 – Facility Ratings

Facility Type	Voltage (kV)	Current (A)	Real Power (MW)	Reactive Power (MVAr)	Apparent Power (MVA)*
Transmission Line		X			X
Bus	X				
Transformer					X
Generating Unit			X	X	
Aggregated Generating Facility			X	X	
Shunt Capacitor Bank or Shunt Reactor	X			X	
Static VAr Compensator	X			X	
Series Capacitor Bank	X	X		X	
Filter Bank	X			X	
HVDC	X		X		

*Note: Apparent power (MVA) is typically calculated at nominal voltage and this voltage used in its calculation is to be stated in data submissions to the AESO as per subsection 2(2) of Section 503.21 of the ISO rules, *Reporting Facility Modelling Data* ("Section 503.21") and subsection 2(1) of Section 304.6 of the ISO rules, *Unplanned Transmission Facility Limit Changes* ("Section 304.6"), as applicable.

[1] "Authoritative documents" is the general name given by the AESO to categories of documents made by the AESO under the authority of the *Electric Utilities Act* and associated regulations, and that contain binding legal requirements for either market participants or the AESO, or both. Authoritative documents include the ISO rules, the reliability standards, and the ISO tariff.

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The AESO advises each legal owner, when applying its facility rating methodology, in accordance with requirement R2 and R3 to steady state conditions and not transient conditions.

4 Dynamic Thermal Line Ratings

Pursuant to requirement R3.2 of FAC-008-AB-3, when documenting the methodology for determining facility ratings of transmission lines that use a dynamic thermal line rating process, the AESO recommends that the legal owner also maintain a static seasonal line rating methodology for both normal and emergency ratings in addition to the dynamic thermal line rating methodology.

5 Facility Ratings

This section contains examples of facilities for the purpose of determining ampacity ratings, apparent power (MVA) ratings, and the most limiting applicable equipment rating. Where appropriate, examples of other facility ratings are also shown in the figures below. The examples also identify the entity responsible for either, pursuant to requirement R1, the documentation for determining the facility ratings or, pursuant to requirement R2 and R3, the documented methodology for determining the facility ratings. The figures below include:

(a) a transmission line;

(b) a T-tapped transmission line;

(c) a transmission line with a breaker-and-a-half configuration;

(d) a transformer;

(e) a generating unit; and

(f) an aggregated generating facility.

5.1 Transmission Line

The AESO considers point-to-point ampacity and apparent power ratings to be facility ratings that each legal owner is expected to address to meet requirements R2 and R3 of FAC-008-AB-3 for transmission lines. An example that illustrates these transmission line facility ratings, and the owner responsible, is shown in Figure 1.

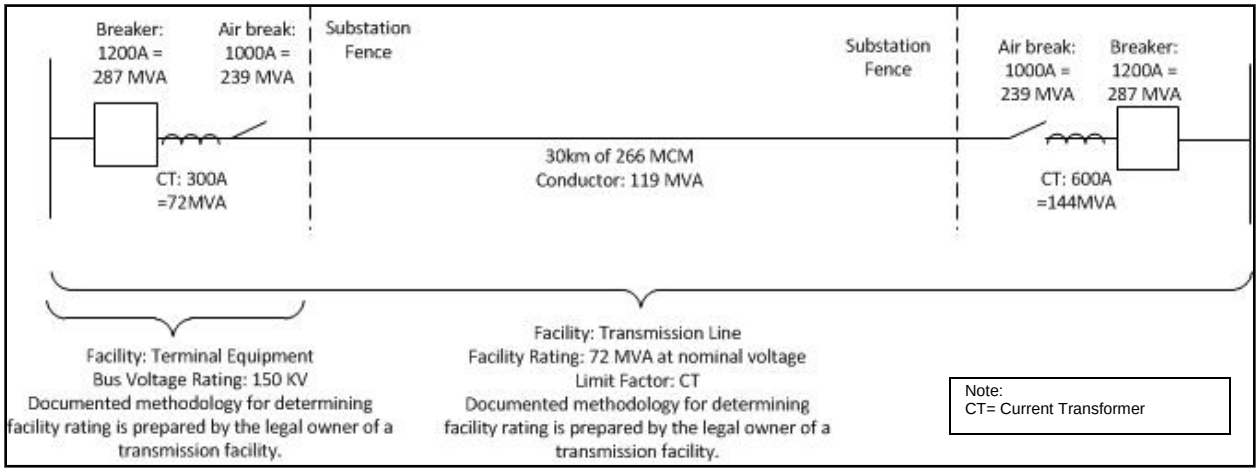

Figure 1: Transmission Line - Facility Ratings and Ownership

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T-Tap transmission lines

The AESO considers point-to-point ampacity and apparent power ratings to be the facility ratings that each legal owner is expected to address to meet requirements R2 and R3 of FAC-008-AB-3, as applicable, for T-tap transmission lines. An example that illustrates the facility ratings addressed for a T-tap transmission line, and the owner responsible, is shown below in Figure 2.

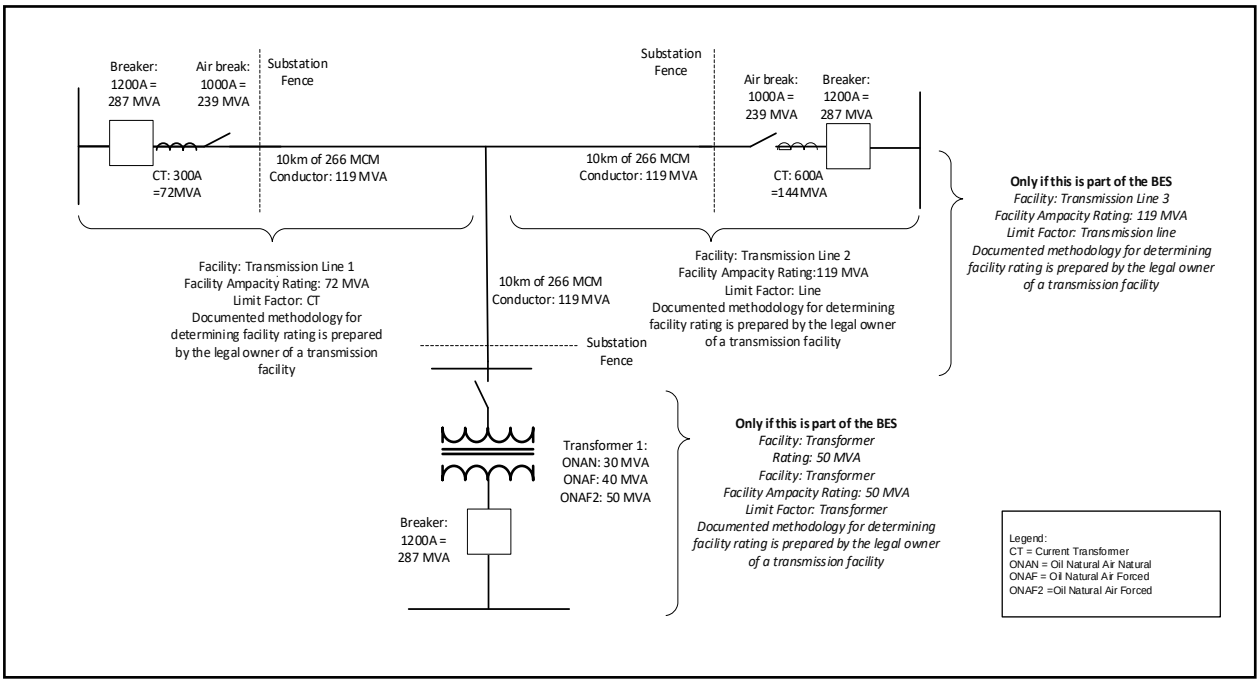

Figure 2: T-tap Transmission Line Example – Facility Rating and Ownership

Line with a Breaker-and-a-Half Configuration

The transmission line facility rating methodology may or may not include the limiting effect of the breaker-and-a-half terminal equipment. If this terminal configuration poses a potential limit to the transmission line capability with 1 of the 2 breakers open, then the AESO expects this limitation to be included in its facility rating methodology and that it be calculated as part of data submitted to the AESO, as set out in requirements R2.2(d) and R3.2(d) of FAC-008-AB-3.

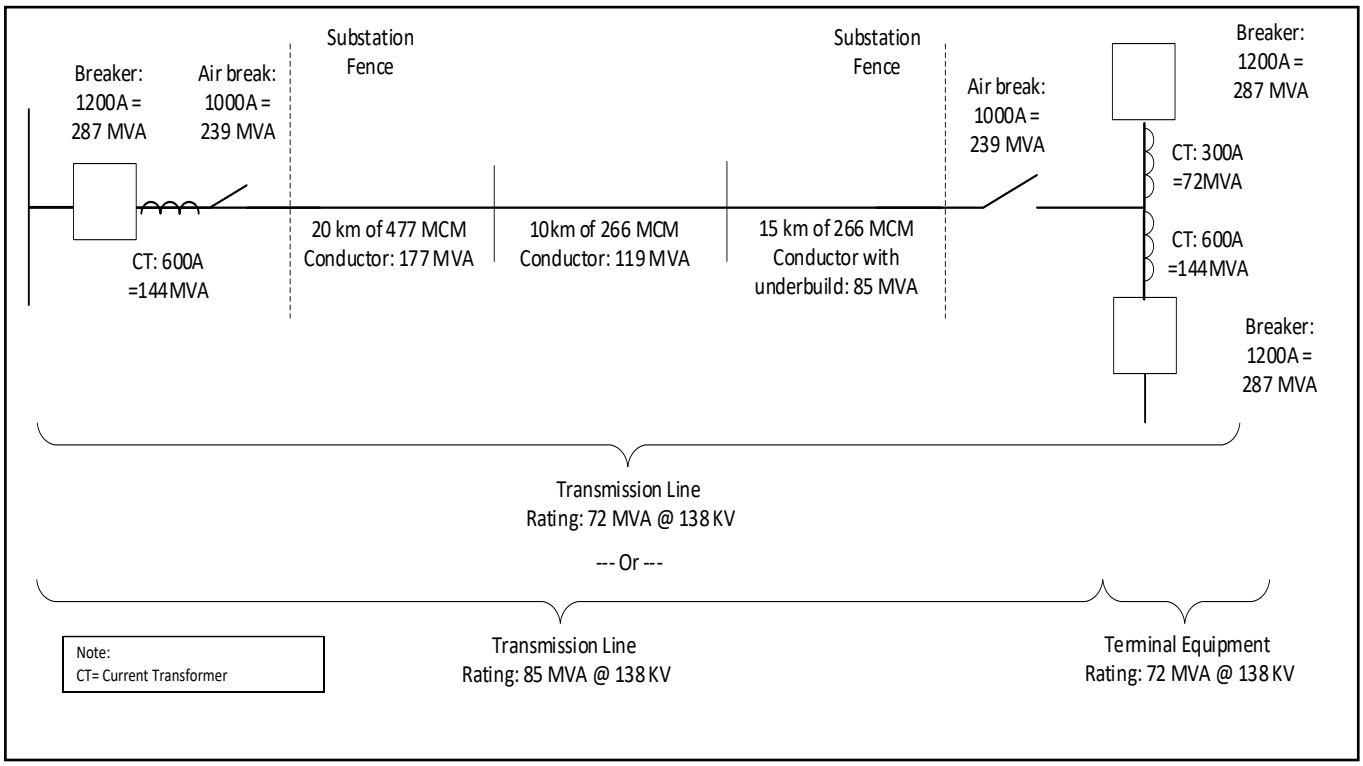

Figure 3: Transmission Line with Breaker-and-a-Half Terminal Equipment Example – Facility Ratings

5.2 Transformer

The AESO considers point-to-point ampacity and apparent power ratings to be the facility ratings that each legal owner is expected to address to meet requirements R1, R2, and R3 of FAC-008-AB-3 for transformers. An example that illustrates these transformer facility ratings, and the owner responsible, is shown in Figure 4.

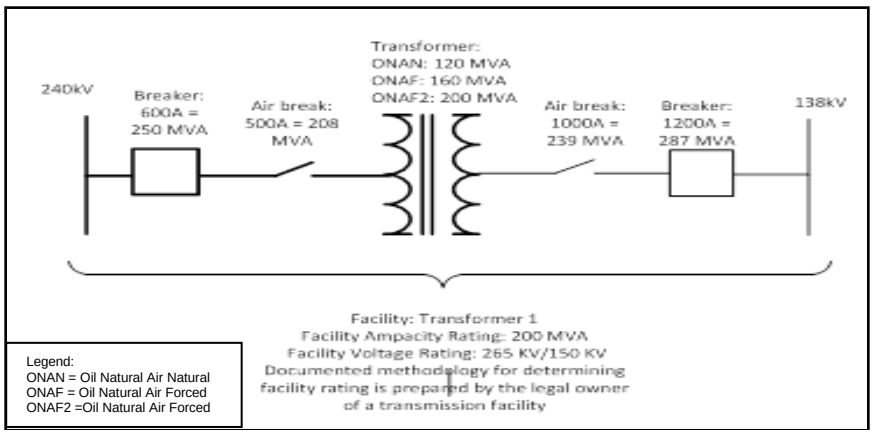

Figure 4: Transformer Example - Facility Ratings and Owner

The transformer rating methodology may or may not include the limiting effect of the breaker-and-a-half terminal equipment. If the terminal configuration poses a potential limit to the transformer capability with 1 of the 2 breakers open, then the AESO expects the legal owner to include this limitation in the transformer facility rating methodology, as set out in requirements R2.2(d) and R3.2(d) of FAC-008-AB-3, and that it be calculated as part of data submitted to the AESO, pursuant to subsection 2(2) of Section 503.21 and subsection 2(1) of Section 304.6, as applicable. An example that illustrates these transformer facility ratings, and the owner responsible is shown in Figure 5 below.

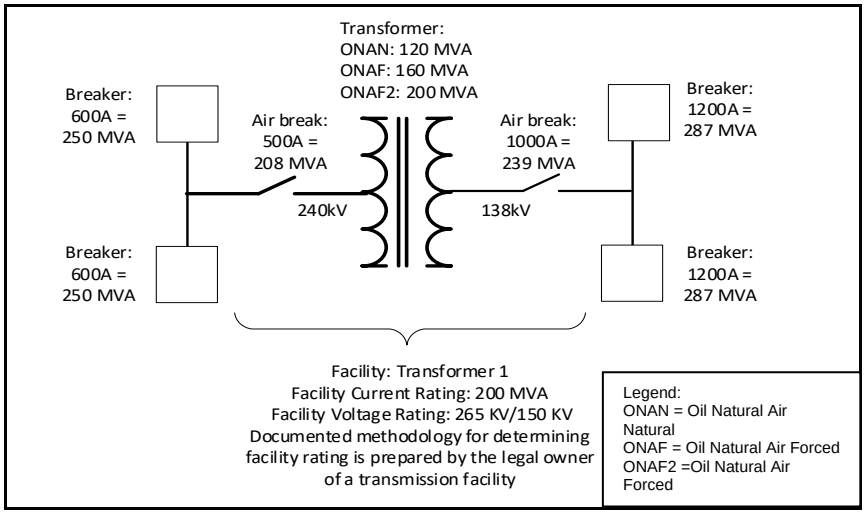

Figure 5: Transformer with Breaker-and-a-Half Terminal Equipment Example - Facility Ratings and Owner

Transformers have 2 time-based emergency ratings associated with their capacity. Pursuant to requirements R2.4.2.1 and R3.4.2.1 of FAC-008-AB-3, each legal owner is required to include in its methodology the emergency ratings for equipment comprising power transformers. The first emergency rating is based on 30 minutes of overload. The second emergency rating is based on the subsequent 3.5 hours loading that follows the 30-minute overload rating.

5.3 Generating Unit

As set out in requirements R1, R2, and R3 of FAC-008-AB-3, each legal owner is accountable for addressing the facility rating documentation and methodology for the equipment it owns. Figure 6 below shows 2 examples of generating unit connections to the transmission system, which illustrate possible delineations of ownership. This figure is available in NERC's *Standard Application Guide FAC-008-3*.[2]

The terminology in Alberta differs from the terminology used by NERC, which is illustrated in Figure 6 below. In Alberta, point of interconnect is referred to as the point of connection, in addition, a Generator Owner is known as either an owner of a generating unit or an owner of an aggregated generating facility. The GSU refers to the generator step-up transformer.

[2] NERC, *ERO Enterprise-Endorsed Implementation Guidance: Standard Application Guide FAC-008-3, Version 1.1*, Dated: March 21, 2017, Available on www.nerc.com.

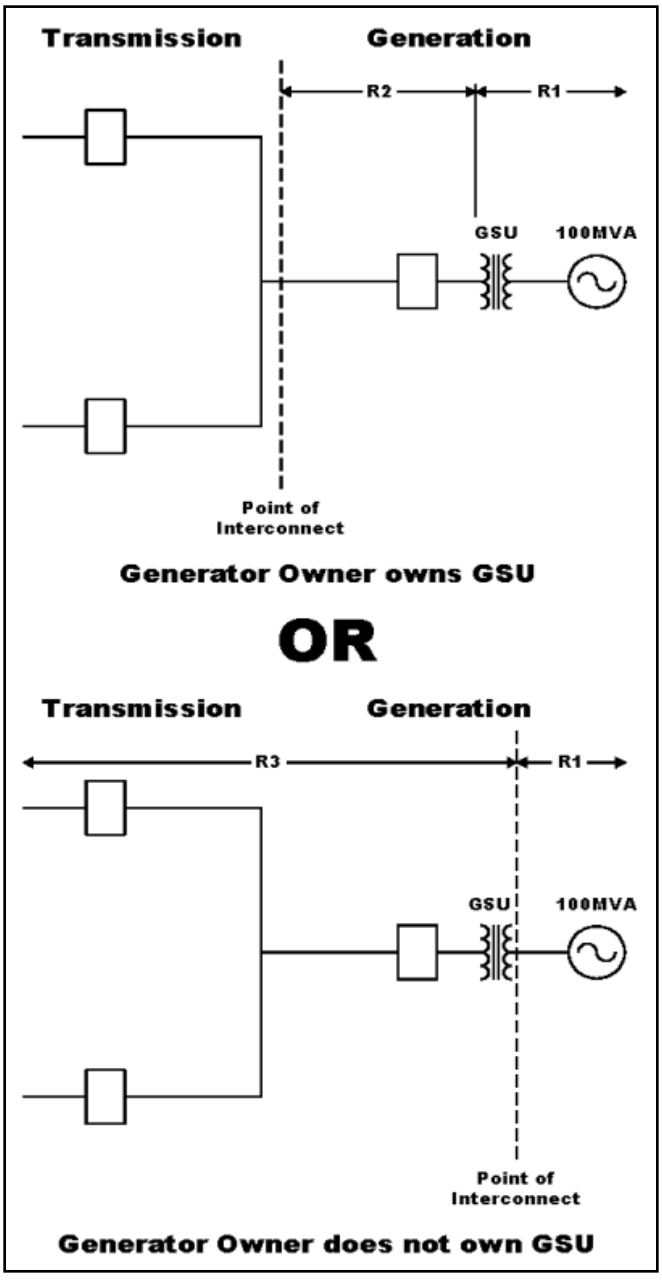

Figure 6: Generating Unit Examples - Ownership

As set out in requirement R1 of FAC-008-AB-3, the legal owner is only required to have documentation for determining facility ratings for the electrical equipment that is part of its generating unit. However, the legal owner may choose to provide additional information, including the ratings of mechanical equipment that is part of its generating unit to meet requirement R1 of FAC-008-AB-3.

The legal owner of a generating unit is advised to review and adhere to Division 503 of the ISO rules to determine if other facility rating requirements apply to its facility.

5.4 Aggregated Generating Facility

The AESO considers real power (MW) and reactive power (MVAr) ratings to be facility ratings that each legal owner is expected to address to meet requirements R1, R2, and R3 of FAC-008-AB-3 for an aggregated generating facility. An example of the ratings expected for an aggregated generating facility is shown in Figure 7 below. This example refers to the FAC-008-AB-3 R1(a) scenario.

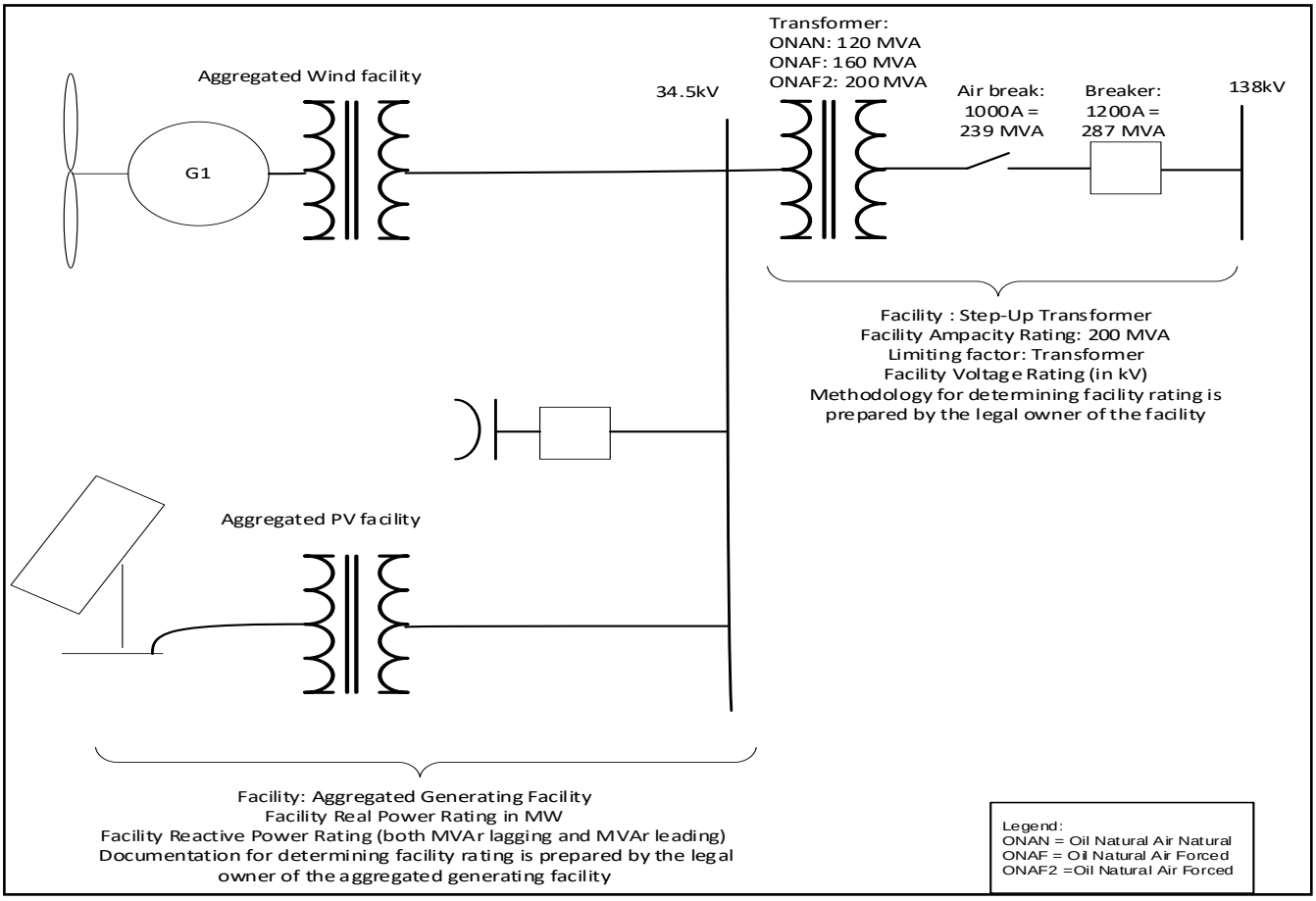

Figure 7: Aggregated Generating Facility Example - Facility Rating

6 NERC *Standard Application Guide FAC-008-3*

The AESO generally agrees with the information related to requirements R1, R2, R3, and R6 of FAC-008-3 contained within NERC's *Standard Application Guide FAC-008-3*, excluding content related to requirements that the AESO modified prior to adoption in Alberta. The AESO recognizes that the NERC *Standard Application Guide FAC-008-3* may be a useful reference for each legal owner in assessing its compliance with FAC-008-AB-3 and the AESO may also use the above guide as reference material in assessing compliance with FAC-008-AB-3.

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Revision History

Posting Date	Description of Changes
2025-05-07	Administrative changes through the document to improve clarity and update references to Division 503 of the ISO rules from retired rules in Division 502 of the ISO rules The reference to subsection 2(2) of Section 502.15 of the ISO Rules, *Reporting Facility Modelling Data* ("Section 502.15") has been updated to subsection 2(2) of Section 503.21 of the ISO Rules, *Reporting Facility Modelling Data* ("Section 503.21"). The reference to Section 502.5 of the ISO rules, *Generating Unit Technical Requirements*, and Section 502.6 of the ISO rules, *Generating Unit Operating Requirements* has been updated to Division 503 of the ISO rules. Clarification was also provided to the description of the Transformer section on page 5 by adding the "the emergency ratings for equipment comprising power transformers" at the end of the "Pursuant to requirements R2.4.2.1 and R3.4.2.1 of FAC-008-AB-3, each legal owner is required to include in its methodology" sentence. Clarification was provided to the description of the Generating Unit section on page 5 by revising the sentence "The terminology in Alberta differs from the terminology used in the figure." to "The terminology in Alberta differs from the terminology used in the figure by NERC, which is illustrated in Figure 6 below."
2021-11-30	Revisions to Section 2 by removing the definitions of the meaning of "new" and "existing" facilities, adding in information on FAC-008-AB-3 effective date. Revisions to the "Generating Unit" section (now Section 5.3) regarding requirement R1 applicability and the replacement of Figure 6. The addition of Section 6 to explain the AESO's view on NERC's *ERO Enterprise-Endorsed Implementation Guidance: Standard Application Guide FAC-008-3*. Other administrative changes were made throughout the document to improve the clarity of the document and to align the document to the current AESO drafting principles, including adding specific authoritative subsection references, removing acronyms, and modifying the formatting.
2019-01-29	Updated to provide clarity on the meaning of "new" and "existing" facilities.
2017-11-09	Initial release.