



## Alberta Reliability Standards Glossary of Terms

Effective:

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“*adjacent balancing authority*” means a *balancing authority area* that is interconnected with another *balancing authority area* either directly or via a multi-party agreement or transmission tariff;

“*arranged interchange*” means the state where the *interchange authority* has received the interchange information (initial or revised);

“*balancing authority*” or “*BA*” means a responsible entity that integrates resource plans ahead of time, maintains load-interchange generation balance within a *balancing authority area*;

“*balancing authority area*” means the collection of generation, transmission and loads, within the metered boundaries of a *balancing authority area*, and supports *Interconnection* frequency in real-time;

“*bulk electric system*” or “*BES*” as defined by the Regional Reliability Organization, means the electrical generation resources, transmission lines, *interconnections*, with neighbouring *systems*, and associated equipment, generally operated at voltages of 100kV or higher; radial *transmission facilities* serving only *load* with one transmission source are generally not included in this definition;

“*cascading*” means the uncontrolled successive loss of *system* elements triggered by an incident at any location; *cascading* results in widespread electric services interruption that cannot be restrained from sequentially spreading beyond an area predetermined by studies;

“*compliance monitor*” means the entity(s) appointed by the *Commission* to carry out compliance monitoring of *reliability standards*;

“*confirmed interchange*” means the state where the *interchange authority* has verified the *arranged interchange*;

“*contingency*” means the unexpected failure or *outage* of a *system* component, such as a *generating unit*, transmission line, circuit breaker, switch or electrical element;

“*control performance standard*” or “*CPS*” means the reliability standard that sets the limits of a balancing authority’s area control error over a specified time period;

“*demand*” means:

- the rate at which electric energy is delivered to or by a *system* or part of a *system*, generally expressed in kilowatts or megawatts, at a given instant or averaged over any designated interval of time;
- the rate at which electric energy is being used by the *demand customer*;



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“*element*” means any electrical device, comprised of one or more components, with terminals that may be connected to other electrical devices such as a generating unit, transformer, circuit breaker, bus section, or transmission line;

“*facility*” means a set of electrical equipment that operates as a single *bulk electric system* element, including without limitation, a transmission line, generating unit, shunt compensator, or transformer;

“*facility rating*” means the maximum or minimum voltage, current, frequency, or real or reactive power flow through a facility that does not violate the applicable equipment *rating* of any equipment comprising the facility;

“*frequency bias*” means a value, usually expressed in megawatts per 0.1 Hertz (MW/0.1 Hz), associated with a balancing authority area that approximates the balancing authority area’s response to Interconnection frequency error;

“*frequency bias setting*” means a value, usually expressed in MW/0.1 Hz, set into a balancing authority ACE algorithm that allows the balancing authority to contribute its frequency response to the Interconnection;

“*frequency deviation*” means a change in Interconnection frequency;

“*frequency error*” means the difference between the actual and scheduled frequency. ( $F_A - F_s$ );

“*frequency response*” means, for an equipment, the ability of a *system* or elements of the *system* to react or respond to a change in *system* frequency, or for a *system*, the sum of the change in demand, plus the change in generation, divided by the change in frequency, expressed in megawatts per 0.1 Hertz (MW/0.1 Hz);

“*high voltage direct current*” or “*HVDC*” means a *high voltage direct current* power *transmission facility* that uses direct current to transfer power;

“*interchange*” means energy transfers that cross *balancing authority* boundaries;

“*interchange authority*” means the responsible entity that authorizes implementation of valid and balanced *interchange schedules* between *balancing authority areas*, and ensures communication of interchange information for *reliability* assessment purposes;

“*interconnected transmission operator*” means the entity outside of Alberta responsible for the reliability of its “local” transmission system, and that operates or directs the operations of the transmission facilities;

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*“interconnection”* means the electrical connection of the AIES with any electric *system* in a jurisdiction bordering Alberta. When capitalized, it means any one of the three major electric *system* networks in North America: Eastern, Western, and ERCOT;

*“interconnection reliability operating limits”* or *“IROL”* means a *system operating limit*, that if violated, could lead to instability, uncontrolled separation or *cascading outages* that adversely impact the *reliability* of the *bulk electric system*;

*“misoperation”* means any one of the following:

- any failure of a *protection system* element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection;
- any operation for a fault not within a zone of protection, except an operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone;
- any unintentional *protection system* operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity.

*“net actual interchange”* means the algebraic sum of all metered interchange over all interconnections between two physically adjacent balancing authority areas;

*“net energy for load”* means net *balancing authority area* generation, plus energy received from other *balancing authority areas*, less energy delivered to *balancing authority areas* through *interchange*; it includes *balancing authority area* losses but excludes energy required for storage at energy storage facilities;

*“net interchange schedule”* means the algebraic sum of all interchange schedules with each adjacent balancing authority;

*“normal clearing”* means that a *protection system* operates as designed and the fault is cleared in the time normally expected with proper functioning of the installed *protection systems*;

*“owner of industrial system”* means the owner of an industrial system designated as such by the *Commission* in accordance with the Hydro and Electric Energy Act and includes the operator of such system;

*“peak demand”* means:

- the highest hourly integrated *net energy for load* within a *balancing authority area* occurring within a given period;
- the highest instantaneous demand within the *balancing authority area*;

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"*protection system*" means protective relays, associated communication systems, voltage and current sensing devices, station batteries and DC control circuitry;

"*rating*" means the operational limits of a transmission *system* element under a set of specified conditions;

"*receiving balancing authority*" means the *balancing authority* importing the *interchange*;

"*schedule*" means to set up a plan or arrangement for an *interchange transaction*;

"*scheduling path*" means the transmission service arrangements reserved by a *market participant* for an *interchange transaction*;

"*sending balancing authority*" means the *balancing authority* exporting the *interchange*;

"*stability*" means the ability of an electric *system* to maintain a state of equilibrium during normal and abnormal conditions;

"*stability limit*" means the maximum power flow possible through some particular point in the *system* while maintaining *stability* in the entire *system* or the part of the *system* to which the *stability* limit refers;

"*surge*" means transient variation of current, voltage, or power flow in an electric circuit or across an electric system;

"*system operating limit*" means the value (*MW*, *MVar*, amperes, frequency or volts) that satisfies the most limiting of prescribed operating criteria for a specified *system* configuration to ensure operation within acceptable *reliability* criteria; *system operating limits* are based upon certain operating criteria:

- *facility ratings* (applicable pre- and post-*contingency* equipment or *facility ratings*)
- transient *stability ratings* (applicable pre- and post-*contingency stability limits*)
- voltage *stability ratings* (applicable pre- and post-*contingency* voltage *stability*)
- *system* voltage limits (applicable pre- and post-*contingency* voltage limits)

"*system*" means a combination of generation, transmission, and distribution of components;

"*tie line*" means a circuit connecting two balancing authority areas;

"*Transmission Maintenance and Inspection Plan*" or "*TMIP*" means a written plan for the regular and ongoing maintenance of *transmission facilities*;

"*transmission connected end-use customer*" means an entity purchasing electricity for their own use that are connected to the *AIES* at a high voltage level above 25 kV;



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*"transmission operator"* means the entity responsible for the *reliability* of its "local" transmission system, and that operates or directs the operations of the *transmission facilities*;

*"transmission service provider"* means the entity that administers the transmission tariff and provides transmission service to *Transmission Customers* under applicable transmission service agreements;

*"transmission vegetation management program"* or *"TVMP"* means a plan for vegetation management work to ensure the *reliability* of electric transmission systems;

*"VRC"* means the *Vancouver Reliability Coordinator*.