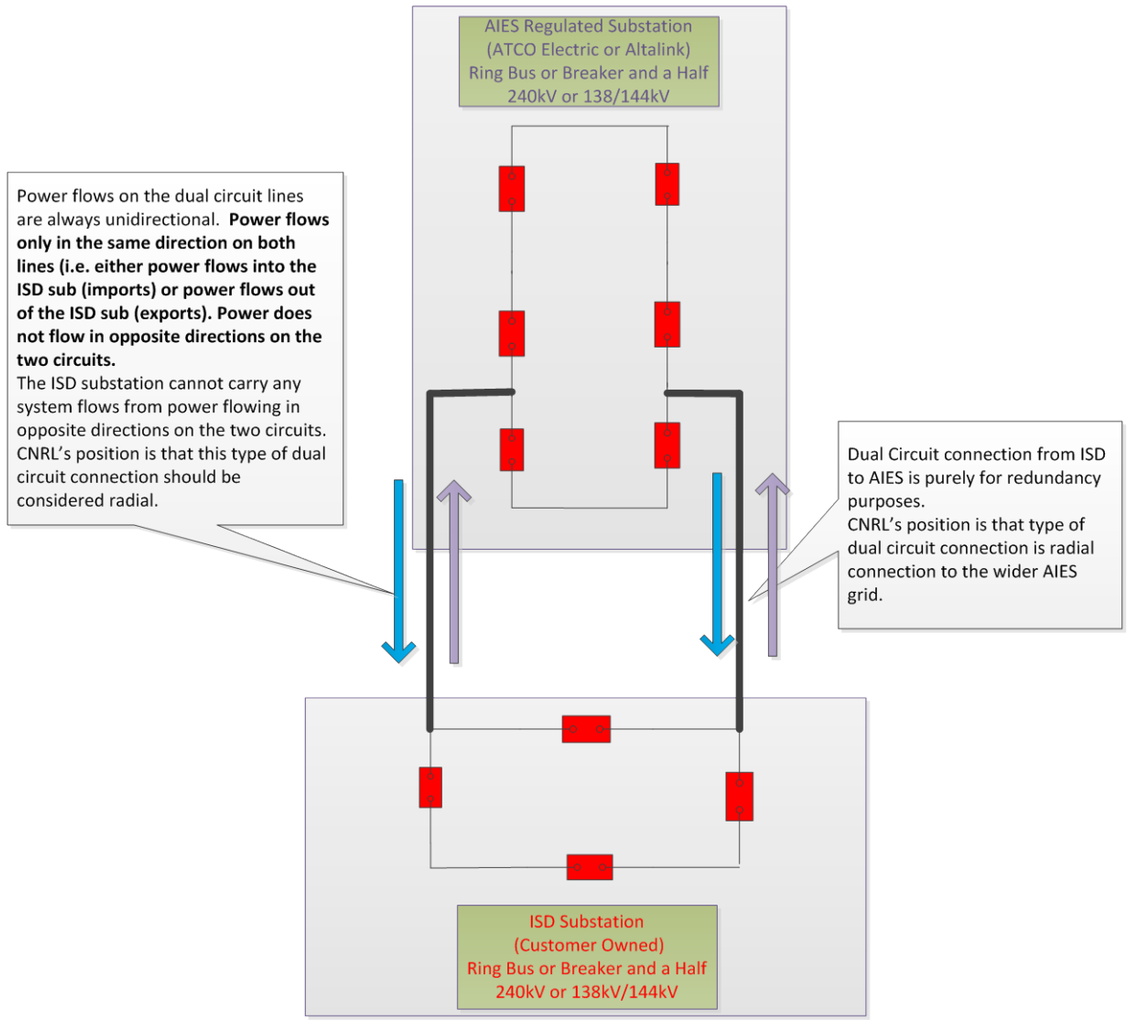
Stakeholder Comment Matrix – July 23, 2019

Consultation on Proposed new and amended ARS related definitions

Date of Request for Comment: July 23, 2019	Contact: Jamie Walker
Period of Consultation: July 23, 2019 through August 6, 2019	Phone: 403-869-2537
Comments From: Canadian Natural Resources Ltd (CNRL)	Email: Jamie.walker@cnrl.com
Date [yyyy/mm/dd]: 2019/08/06	

Listed below is the summary description of changes for the proposed new and amended ARS related definitions. Please refer back to the Consultation Letter under the "Attachments" section to view materials related to the proposed new and amended ARS related definitions. Please place your comments/reasons for position underneath (if any).

Definitions – New		
Existing	**Proposed**	**Stakeholder Comments and/or Alternate Proposal**
No definition currently exists for use in the Alberta reliability standards	"**radial circuit**" means an arrangement of contiguous **system elements** energized at 50 kV or higher that: (a) extend from a **system element** on the networked **transmission system** in a linear or branching configuration; (b) connect to one or more of a load facility, a **generating unit**, or an	*Comment # 1: CNRL understands that the proposed definition sufficiently represent different radial connection arrangement between typical distribution facility interconnection with transmission but it does not take in to account some following specific arrangements many industrial facilities have to improve reliability:* - *(c) Industrial facilities are connected to the transmission via a dual circuit, a second parallel line is added for the purpose of improving system reliability while any single line is capable of handling full load and fault current. These facilities should also be considered radial.* - *(c) Industrial facilities are connected to the transmission via dual circuit where the second circuit is purely for redundancy purposes. The flow of power is always unidirectional on the two circuits (i.e. power always flows in the same direction on the dual circuits). CNRL believe that this type of dual circuit connection should be considered radial since the power flow is always in the same direction on the two circuits and the 2nd circuit is purely for redundancy purposes.*

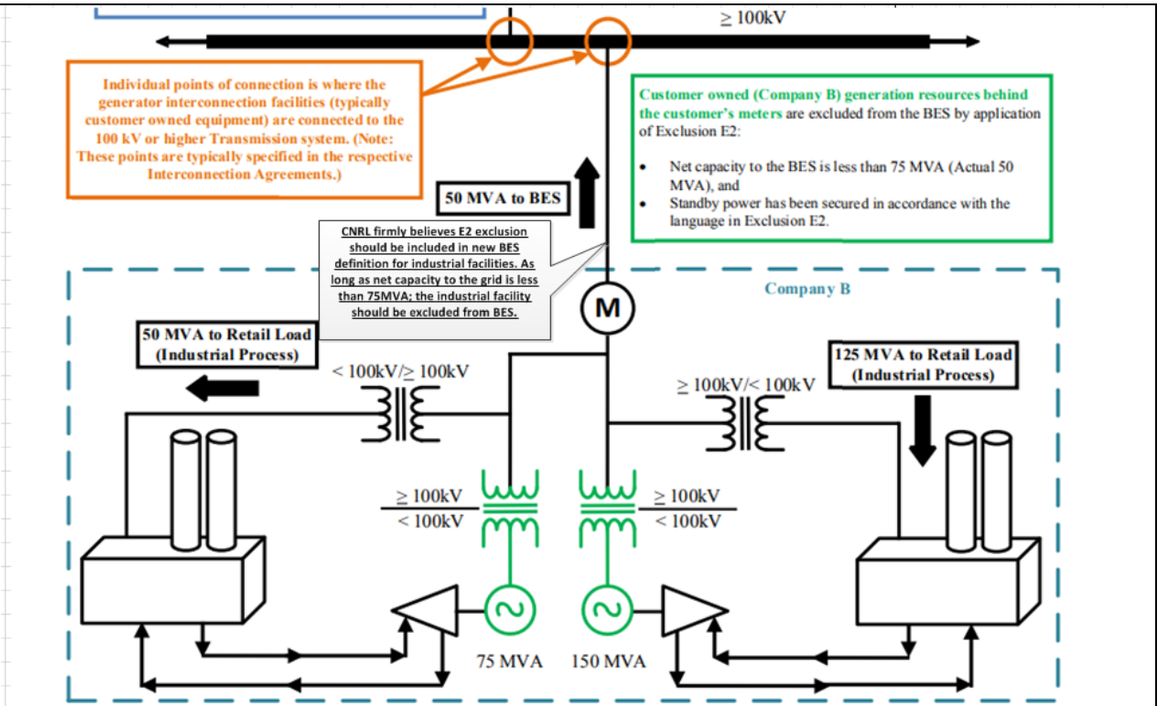
	aggregated generating facility; and (c) comprise the only circuit by which power can flow between the networked **transmission system** and the facilities identified in item (b) under normal operating conditions, and includes an arrangement where the circuit energized at 50 kV or higher is connected to another circuit energized at 50 kV or higher, either through a switching device that is operated normally open or through facilities energized at less than 50 kV where the circuit would be a **radial circuit** if the connection did not exist.	

		CNRL Requests: 1. Point (b) should be modified to include "dual parallel circuits provided any single line is capable of handling 100% of load and that power cannot flow in opposite directions on the two circuits simulataneously". 2. Point (b) should be modified to include "connect to one or more of a load facility, one or more generating units with net capacity to the BES of less than a (suitable MVA limit), or an aggregated generating facility"; and
No definition currently exists for use in the Alberta reliability standards	"**system access service**" as defined in the Act means the service obtained by **market participants** through a connection to the **transmission system**, and includes access to exchange electric energy and **ancillary services**.	

Definitions – Amended

Existing	Proposed	Blackline of Existing and Proposed	Stakeholder Comments and/or Alternate Proposal
"bulk electric system" 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 one hundred (100) kV or higher; radial	"**bulk electric system**" means all **system elements** that are included in the following: (i) all **system elements** that have all terminals energized at 100 kV or higher that are not part of a **radial circuit**; (ii) a **radial circuit** comprised of **system elements** that have all terminals energized	"**bulk electric system**" ~~as defined by the Regional Reliability Organization,~~ means all **system elements** that are included in the following: (i) all **system elements** that have all terminals energized at 100 kV or higher that are not part of a **radial circuit**; (ii) a **radial circuit** comprised of **system elements** that have all terminals energized at 100 kV or higher where the ~~electrical generation~~**radial circuit**	*Comment # 1: Insert Comments / Reason for Position (if any)* NERC E2 Exclusion from BES: "E2: A generating unit or multiple generating units on the customer's side of the retail meter that serve all or part of the retail customer Load with electric energy on the customer's side of the retail meter if: (i) the net capacity provided to the BES does not exceed 75 MVA, and (ii) standby, back-up, and maintenance power services are provided to the generating unit or multiple generating units, or to the retail Load by a Balancing Authority, or provided pursuant to a binding obligation with a Generator Owner or Generator Operator, or under terms approved by the applicable regulatory authority." CNRL understands that large industrial facilities that have distribution embedded generation primarily to support internal load, **these industrial facilities should be excluded from BES as per E2 exemption specified in the NERC definition.** These facilities have no impact on transmission reliability due to their limited net exports/imports to the grid and bringing them under the ARS umbrella complicates routine industrial process operation and does not improve reliability. Essentially with commercial and technical arrangements that the industrial facilities have with the AESO,

transmission facilities serving only load with one (1) transmission source are generally not included in this definition.	at 100 kV or higher where the **radial circuit** connects to: (a) any facility included in items (iv) through (vii) below; or (b) 2 or more generating resources, being **generating units** and **aggregated generating facilities**, that have a combined **maximum authorized real power** higher than 67.5 MW; (iii) a transformer that has its primary terminal and at least one secondary terminal energized at 100 kV or higher; (iv) a **generating unit** that has a **maximum authorized real power** higher than 18 MW where **system access service** is provided through a switchyard that is directly connected to **transmission**	connects to: (a) any facility included in items (iv) through (vii) below; or (b) 2 or more generating resources, being **generating units** and **aggregated generating facilities**, that have a combined **maximum authorized real power** higher than 67.5 MW; (iii) a transformer that has its primary terminal and at least one secondary terminal energized at 100 kV or higher; (iv) a **generating unit** that has a **maximum authorized real power** higher than 18 MW where **system access service** is provided through a switchyard that is directly connected to **transmission** ~~lines, **interconnections**, with neighbouring **systems**, and associated equipment, generally operated at voltages of one hundred (100) kV or higher; radial~~ **facilities** energized at 100 kV or higher, including all **system elements** from the terminal of the **generating unit** to the **transmission facilities** ~~serving only load with one (1)~~energized at 100 kV or higher;	the reliability impact to the wider AIES of a typical industrial facility with onsite heat integrated generation is less severe than any typical distribution load. This aspect is not taken into consideration when E2 exception is removed which essentially brings many industrial facilities under unnecessary ARS obligations and complicates the applicability assessment process of most standards. CNRL requests that NERC E2 exemption be retained in the BES definition and industrial facilities with distribution embedded generation with net capacity to grid of 75 MVA be considered exempt from BES. CNRL firmly believes that BES NERC E2 exclusion should be retained in the new BES definition from the AESO. CNRL states that adopting new NERC BES definition incl. applicable exclusions will improve process safety within complex industrial facilities and reduce compliance costs for industrial facilities. Industrial facilities with behind the fence heat integrated generation are designed to produce electricity to primarily supply internal loads.

	facilities energized at 100 kV or higher, including all **system elements** from the terminal of the **generating unit** to the **transmission facilities** energized at 100 kV or higher; (v) an **aggregated generating facility** that has a **maximum authorized real power** higher than 67.5 MW where **system access service** is provided through a switchyard that is directly connected to **transmission facilities** energized at 100 kV or higher, including all **system elements** from the collector bus to the **transmission facilities** energized at 100 kV or higher, and excluding the **generating units** and the collector system feeders; (vi) all **generating units** and **aggregated generating facilities** where **system access service** is provided through a common	(v) an **aggregated generating facility** that has a **maximum authorized real power** higher than 67.5 MW where **system access service** is provided through a switchyard that is directly connected to **transmission** ~~source are generally not included in this definition.~~ **facilities** energized at 100 kV or higher, including all **system elements** from the collector bus to the **transmission facilities** energized at 100 kV or higher, and excluding the **generating units** and the collector system feeders; (vi) all **generating units** and **aggregated generating facilities** where **system access service** is provided through a common switchyard that is directly connected to **transmission facilities** energized at 100 kV or higher and the **generating units** and **aggregated generating facilities** have a combined **maximum authorized real power** higher than 67.5 MW, including all **system elements** from the terminal of each **generating unit** and from the collector bus of each	 **gure E2.5: Behind-the-Meter Generation—Multiple Units Located at Multiple Generation Sites (Multiple Owners)**

	switchyard that is directly connected to **transmission facilities** energized at 100 kV or higher and the **generating units** and **aggregated generating facilities** have a combined **maximum authorized real power** higher than 67.5 MW, including all **system elements** from the terminal of each **generating unit** and from the collector bus of each **aggregated generating facility** to **transmission facilities** energized at 100 kV or higher, and excluding the **generating units** and collector system feeders of each **aggregated generating facility**; (vii) a **blackstart resource**, including all **system elements** from the terminal of the **blackstart resource** to **transmission facilities** that are	**aggregated generating facility** to **transmission facilities** energized at 100 kV or higher, and excluding the **generating units** and collector system feeders of each **aggregated generating facility**; (vii) a **blackstart resource**, including all **system elements** from the terminal of the **blackstart resource** to **transmission facilities** that are energized at 100 kV or higher; and (viii) a static or dynamic **reactive power** resource that is dedicated to supplying or absorbing **reactive power** to or from the **transmission system** and is connected: (a) to **transmission facilities** energized at 100 kV or higher; (b) through a dedicated transformer that is directly connected to **transmission facilities** energized at 100 kV or higher; or (c) through a non-dedicated transformer that has its primary terminal and at least one secondary terminal energized at 100 kV or higher.	

	energized at 100 kV or higher; and (viii) a static or dynamic **reactive power** resource that is dedicated to supplying or absorbing **reactive power** to or from the **transmission system** and is connected: (a) to **transmission facilities** energized at 100 kV or higher; (b) through a dedicated transformer that is directly connected to **transmission facilities** energized at 100 kV or higher; or (c) through a non-dedicated transformer that has its primary terminal and at least one secondary terminal energized at 100 kV or higher.		