

Alberta Interconnected Electric System								
Transmission Outage Statistics								
Summary for Line Related Forced Outages								
For the Period From 1997 - 2001								
Voltage Class (kV)	Kilometer Years (km.a)	Number of Sustained Faults	Frequency per 100 km.a (faults/100 km.a)	Total Outage Duration (hours)	Average Outage Duration (hrs/fault)	Unavailability per 100 km.a (%)	Number of Momentary Faults	Frequency per 100 km.a (faults/100 km.a)
69/72	9,017	186	2.06	1,130	6.08	0.14%	601	6.67
138/144	54,417	322	0.59	2,272	7.06	0.05%	685	1.26
240	33,968	235	0.69	1,159	4.93	0.04%	320	0.94
500	1,595	14	0.88	37	2.64	0.03%	95	5.96
Total	98,997	757	0.76	4,598	6.07	0.05%	1,701	1.72

Alberta Interconnected Electric System								
Transmission Outage Statistics								
Summary for Transmission Terminal Related Forced Outages								
For the Period From 1997 - 2001								
Voltage Class (kV)	Terminal Years	Number of Sustained Faults	Frequency per Year (faults/a)	Total Outage Duration (hours)	Average Outage Duration (hrs/fault)	Unavailability per Year (%)	Number of Momentary Faults	Frequency per Year (faults/year)
69/72	379	34	0.09	817	24.03	0.025%	116	0.31
138/144	2,254	58	0.03	423	7.29	0.002%	94	0.04
240	828	42	0.05	121	2.88	0.002%	33	0.04
500	10	5	0.50	7	1.40	0.008%	6	0.60
Total	3,471	139	0.04	1,368	9.84	0.005%	141	0.04

Definitions

Kilometer Years (km.a) is the summation of the product of the length in kilometers and the period duration in years for the transmission lines or cables under consideration.

Terminal Years (a) is the summation of the product of the number of terminals and the period duration in years for the transmission lines or cables under consideration. A terminal refers to a transmission line or cable end which is equipped with primary protection.

Number of Sustained Faults is the number of major component related forced outages lasting one minute or more.

Frequency per 100 km.a (faults/100 km.a) is the number of outages divided by the kilometer years which in turn are divided by 100.

Frequency (faults/a) is the number of outages divided by the Terminal Years.

Total Outage Duration (h) is the sum of the forced unavailable times in hours of equipment related to forced sustained forced outages involving the indicated subcomponent or primary cause. Forced unavailable time is the elapsed time required to completely restore the equipment to service

Average Outage Duration (h) is the total time divided by the number of outages.

Unavailability (%) is the product of frequency and average duration divided by the number of hours in a year and expressed as a percentage of one year.

Number of Momentary Faults is the number of major component related forced outages lasting less than one minute.