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How many times in the period 2004 to 2013 has Newfoundland Power been unable to supply customers due to the unavailability of its transmission and terminal station capacity, excluding distribution? List each time and identify whether the cause was due to transmission or terminal station capacity problems, weather conditions, planned maintenance, equipment failure or other conditions.

Over the 10 years from 2004 to 2013, there were 494 events when Newfoundland Power was unable to supply its customers due to transmission or substation issues.^{1,2} None of the power interruptions to customers were caused by capacity problems, (i.e. outages initiated as a result of load exceeding the capacity of the equipment).³

Table 1 shows a summary of these outages by cause.

Transmission and Substation Outages By Cause 2004 - 2013

Cause	Qty
Planned Maintenance	243
Equipment Failure	98
Weather ⁴	78
Other ⁵	75

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A detailed listing of the time of each customer power interruption and the cause of the 18 power interruption is provided in Attachment A.

Newfoundland Power uses the term "substation" to describe locations that contain power transformers and switches. A substation is comparable to "terminal station", a term used by Hydro.

Of the 494 events, 197 resulted in power interruptions of 10 minutes or less in duration. These include temporary problems and switching events. Temporary problems include events such as a tree branch contacting a transmission line and subsequently falling clear of the line. This can result in a short power interruption to customers. Switching events occur when it is necessary to interrupt supply to customers to either reconfigure the power system to restore supply to other customers, or reconfigure the power system to minimize supply interruptions to customers during planned maintenance events. Of the 494 total events, approximately 104 were switching events related to planned maintenance.

Newfoundland Power does not consider outages requiring relay adjustments to permit more load on a transformer to be an outage caused by capacity limitations.

Weather includes major system events such as Hurricane Igor and Bonavista ice storms.

Other causes include: animals/birds, trees, damage from outside parties, and employee error.

PUB-NP-005 Attachment A Supply Issues and Power Outages on the Island Interconnected System

Customer Power Interruptions: 2004 to 2013

Outage ID	<u>Date</u>	Interruption Cause
213746	January 8, 2004	Other
214989	January 18, 2004	Equipment Failure
216420	February 1, 2004	Planned Maintenance
220607	March 22, 2004	Equipment Failure
221316	April 1, 2004	Equipment Failure
222129	April 17, 2004	Planned Maintenance
223346	April 25, 2004	Weather
223508	April 25, 2004	Equipment Failure
222636	April 25, 2004	Weather
223493	April 25, 2004	Equipment Failure
223490	April 25, 2004	Weather
222753	April 25, 2004	Weather
223546	April 26, 2004	Weather
223407	April 27, 2004	Unexplained
223672	April 30, 2004	Unexplained
224008	May 6, 2004	Equipment Failure
224538	May 15, 2004	Weather
224549	May 16, 2004	Planned Maintenance
225201	May 29, 2004	Equipment Failure
225265	June 1, 2004	Planned Maintenance
226140	June 22, 2004	Equipment Failure
226562	June 30, 2004	Equipment Failure
226593	July 1, 2004	Weather
226805	July 6, 2004	Other
226911	July 8, 2004	Equipment Failure
228034	July 31, 2004	Equipment Failure
228414	August 9, 2004	Planned Maintenance
228520	August 11, 2004	Unexplained
228533	August 12, 2004	Equipment Failure
228849	August 18, 2004	Planned Maintenance
228965	August 20, 2004	Other
229053	August 21, 2004	Planned Maintenance
229281	August 24, 2004	Weather
229315	August 24, 2004	Weather
229493	August 28, 2004	Equipment Failure
230094	September 10, 2004	Equipment Failure
230588	September 19, 2004	Equipment Failure
231350	September 21, 2004	Equipment Failure
231813	September 26, 2004	Weather

Outage ID	<u>Date</u>	Interruption Cause
232246	October 3, 2004	Planned Maintenance
232530	October 7, 2004	Planned Maintenance
232592	October 8, 2004	Planned Maintenance
232619	October 8, 2004	Planned Maintenance
232658	October 8, 2004	Planned Maintenance
232722	October 12, 2004	Planned Maintenance
232965	October 14, 2004	Planned Maintenance
233339	October 20, 2004	Other
233569	October 24, 2004	Planned Maintenance
234435	November 4, 2004	Planned Maintenance
234502	November 5, 2004	Planned Maintenance
234651	November 7, 2004	Planned Maintenance
234628	November 7, 2004	Weather
235304	November 16, 2004	Weather
236647	December 1, 2004	Planned Maintenance
237942	December 7, 2004	Weather
238808	December 14, 2004	Unexplained
239150	December 19, 2004	Equipment Failure
240138	December 28, 2004	Other
240157	December 29, 2004	Equipment Failure
240422	December 29, 2004	Unexplained
240471	December 29, 2004	Weather
240507	December 29, 2004	Weather
240481	December 29, 2004	Equipment Failure
240674	December 30, 2004	Planned Maintenance
241983	January 14, 2005	Other
245212	February 3, 2005	Equipment Failure
246245	February 15, 2005	Planned Maintenance
247689	March 2, 2005	Weather
248994	March 17, 2005	Unexplained
249763	March 29, 2005	Equipment Failure
249808	March 29, 2005	Planned Maintenance
249916	March 30, 2005	Unexplained
249942	March 30, 2005	Weather
250096	March 30, 2005	Weather
250113	March 31, 2005	Weather
251185	March 31, 2005	Weather
250192	March 31, 2005	Equipment Failure
250676	April 1, 2005	Equipment Failure

Outage ID	<u>Date</u>	Interruption Cause
251866	April 14, 2005	Equipment Failure
252965	May 5, 2005	Planned Maintenance
254491	May 30, 2005	Equipment Failure
254755	June 2, 2005	Equipment Failure
254786	June 3, 2005	Equipment Failure
255737	June 23, 2005	Planned Maintenance
255775	June 24, 2005	Planned Maintenance
255836	June 24, 2005	Planned Maintenance
256116	June 29, 2005	Weather
256266	July 2, 2005	Planned Maintenance
256421	July 5, 2005	Equipment Failure
256460	July 5, 2005	Equipment Failure
256523	July 7, 2005	Planned Maintenance
256863	July 13, 2005	Other
257316	July 21, 2005	Weather
257320	July 21, 2005	Weather
258535	August 11, 2005	Weather
260264	September 10, 2005	Weather
260271	September 10, 2005	Weather
260277	September 10, 2005	Weather
260134	September 11, 2005	Planned Maintenance
260577	September 16, 2005	Planned Maintenance
262933	October 16, 2005	Weather
262933	October 16, 2005	Weather
262966	October 16, 2005	Weather
263301	October 21, 2005	Planned Maintenance
263245	October 23, 2005	Planned Maintenance
263568	October 24, 2005	Unexplained
264501	November 4, 2005	Planned Maintenance
264612	November 7, 2005	Planned Maintenance
266514	November 30, 2005	Planned Maintenance
266855	December 6, 2005	Planned Maintenance
267408	December 9, 2005	Other
267391	December 13, 2005	Planned Maintenance
268070	December 20, 2005	Planned Maintenance
268331	December 23, 2005	Planned Maintenance
271416	January 25, 2006	Equipment Failure
274484	February 22, 2006	Planned Maintenance
274800	February 25, 2006	Other

Outage ID	<u>Date</u>	Interruption Cause
274950	February 27, 2006	Other
276042	March 16, 2006	Planned Maintenance
277331	March 30, 2006	Equipment Failure
277848	April 7, 2006	Equipment Failure
277988	April 12, 2006	Planned Maintenance
278073	April 17, 2006	Planned Maintenance
278281	April 18, 2006	Planned Maintenance
278462	April 24, 2006	Planned Maintenance
278853	April 28, 2006	Planned Maintenance
279415	May 4, 2006	Equipment Failure
279428	May 8, 2006	Planned Maintenance
279642	May 10, 2006	Equipment Failure
279669	May 13, 2006	Planned Maintenance
280194	May 17, 2006	Equipment Failure
280326	May 21, 2006	Equipment Failure
280277	May 23, 2006	Planned Maintenance
280577	May 27, 2006	Equipment Failure
281000	June 6, 2006	Planned Maintenance
281130	June 14, 2006	Planned Maintenance
281505	June 19, 2006	Unexplained
281633	June 20, 2006	Planned Maintenance
281851	June 24, 2006	Unexplained
282381	July 6, 2006	Planned Maintenance
282520	July 12, 2006	Planned Maintenance
282940	July 14, 2006	Planned Maintenance
283512	July 28, 2006	Planned Maintenance
283513	July 28, 2006	Planned Maintenance
283895	August 2, 2006	Weather
284036	August 8, 2006	Planned Maintenance
284285	August 9, 2006	Planned Maintenance
284042	August 10, 2006	Planned Maintenance
284251	August 11, 2006	Planned Maintenance
284053	August 11, 2006	Planned Maintenance
284365	August 12, 2006	Planned Maintenance
284383	August 12, 2006	Planned Maintenance
284065	August 13, 2006	Equipment Failure
284418	August 13, 2006	Other
284495	August 15, 2006	Planned Maintenance
284718	August 22, 2006	Planned Maintenance

Outage ID	<u>Date</u>	Interruption Cause
285325	August 30, 2006	Planned Maintenance
285377	September 1, 2006	Planned Maintenance
285522	September 7, 2006	Planned Maintenance
286336	September 15, 2006	Planned Maintenance
286367	September 17, 2006	Planned Maintenance
286862	September 23, 2006	Planned Maintenance
286998	September 25, 2006	Other
287456	October 2, 2006	Planned Maintenance
287977	October 16, 2006	Planned Maintenance
288003	October 17, 2006	Planned Maintenance
289671	November 6, 2006	Unexplained
290571	November 23, 2006	Planned Maintenance
293167	December 6, 2006	Equipment Failure
293243	December 6, 2006	Planned Maintenance
293327	December 7, 2006	Other
293655	December 13, 2006	Planned Maintenance
294210	December 20, 2006	Planned Maintenance
299455	February 20, 2007	Equipment Failure
300507	March 2, 2007	Planned Maintenance
300706	March 6, 2007	Other
340624	April 24, 2007	Equipment Failure
349667	April 27, 2007	Other
406462	May 8, 2007	Planned Maintenance
411315	May 16, 2007	Planned Maintenance
411484	May 20, 2007	Other
412274	June 8, 2007	Equipment Failure
412310	June 9, 2007	Planned Maintenance
412473	June 13, 2007	Planned Maintenance
412770	June 27, 2007	Planned Maintenance
412961	June 27, 2007	Planned Maintenance
413504	July 7, 2007	Weather
413876	July 16, 2007	Weather
413972	July 17, 2007	Unexplained
414239	July 21, 2007	Other
414268	July 22, 2007	Other
414483	July 26, 2007	Planned Maintenance
414732	July 30, 2007	Other
415151	August 4, 2007	Weather
415963	August 19, 2007	Equipment Failure

Outage ID	<u>Date</u>	Interruption Cause
416166	August 26, 2007	Planned Maintenance
416168	August 26, 2007	Planned Maintenance
419423	October 14, 2007	Planned Maintenance
421852	November 5, 2007	Equipment Failure
423125	November 23, 2007	Unexplained
426426	December 3, 2007	Equipment Failure
427650	December 8, 2007	Planned Maintenance
427651	December 8, 2007	Planned Maintenance
427939	December 12, 2007	Planned Maintenance
428145	December 13, 2007	Unexplained
428337	December 15, 2007	Equipment Failure
429009	December 21, 2007	Planned Maintenance
429567	December 31, 2007	Equipment Failure
432921	February 6, 2008	Planned Maintenance
433923	February 19, 2008	Planned Maintenance
436563	March 19, 2008	Weather
438467	April 21, 2008	Planned Maintenance
439749	May 16, 2008	Equipment Failure
439768	May 17, 2008	Equipment Failure
439961	May 22, 2008	Planned Maintenance
441054	June 15, 2008	Equipment Failure
441672	July 3, 2008	Planned Maintenance
441887	July 4, 2008	Equipment Failure
441958	July 7, 2008	Planned Maintenance
442124	July 9, 2008	Planned Maintenance
442729	July 18, 2008	Weather
443061	July 26, 2008	Planned Maintenance
443054	July 26, 2008	Planned Maintenance
443712	July 30, 2008	Weather
444314	August 13, 2008	Weather
444267	August 13, 2008	Weather
444500	August 15, 2008	Unexplained
444633	August 16, 2008	Planned Maintenance
444706	August 19, 2008	Planned Maintenance
444730	August 19, 2008	Planned Maintenance
444736	August 19, 2008	Planned Maintenance
444972	August 26, 2008	Planned Maintenance
445467	August 30, 2008	Weather
445489	August 31, 2008	Equipment Failure

Outage ID	Date	Interruption Cause
445674	September 4, 2008	Weather
445647	September 4, 2008	Planned Maintenance
445655	September 4, 2008	Planned Maintenance
445805	September 6, 2008	Planned Maintenance
445729	September 8, 2008	Planned Maintenance
445730	September 8, 2008	Planned Maintenance
445731	September 9, 2008	Planned Maintenance
445733	September 10, 2008	Planned Maintenance
445734	September 10, 2008	Planned Maintenance
445735	September 11, 2008	Planned Maintenance
446723	September 25, 2008	Planned Maintenance
447707	October 9, 2008	Planned Maintenance
448427	October 22, 2008	Equipment Failure
448494	October 23, 2008	Planned Maintenance
449132	October 30, 2008	Other
449711	November 7, 2008	Equipment Failure
450423	November 23, 2008	Planned Maintenance
451230	December 1, 2008	Planned Maintenance
451613	December 3, 2008	Equipment Failure
451813	December 8, 2008	Equipment Failure
452188	December 10, 2008	Other
452583	December 13, 2008	Weather
452712	December 15, 2008	Planned Maintenance
452916	December 16, 2008	Equipment Failure
453617	December 23, 2008	Planned Maintenance
453908	December 24, 2008	Planned Maintenance
457870	February 4, 2009	Planned Maintenance
459785	March 2, 2009	Equipment Failure
460076	March 5, 2009	Planned Maintenance
460722	March 16, 2009	Other
460706	March 18, 2009	Planned Maintenance
460806	March 18, 2009	Planned Maintenance
460907	March 19, 2009	Planned Maintenance
460708	March 19, 2009	Planned Maintenance
460709	March 22, 2009	Planned Maintenance
461694	March 31, 2009	Planned Maintenance
461756	April 1, 2009	Planned Maintenance
461889	April 4, 2009	Equipment Failure
463054	May 5, 2009	Planned Maintenance

Outage ID	Date	Interruption Cause
463549	May 11, 2009	Planned Maintenance
463609	May 11, 2009	Planned Maintenance
463967	May 20, 2009	Planned Maintenance
463969	May 21, 2009	Planned Maintenance
464252	May 25, 2009	Weather
464532	May 31, 2009	Equipment Failure
464533	May 31, 2009	Equipment Failure
464733	June 5, 2009	Other
465089	June 15, 2009	Unexplained
465285	June 23, 2009	Planned Maintenance
465290	June 25, 2009	Planned Maintenance
465739	June 30, 2009	Planned Maintenance
465983	July 5, 2009	Weather
466254	July 14, 2009	Planned Maintenance
466320	July 16, 2009	Planned Maintenance
467034	July 28, 2009	Weather
466764	July 29, 2009	Planned Maintenance
467483	August 7, 2009	Planned Maintenance
467854	August 17, 2009	Planned Maintenance
467855	August 17, 2009	Planned Maintenance
467858	August 18, 2009	Planned Maintenance
467859	August 19, 2009	Planned Maintenance
467862	August 19, 2009	Planned Maintenance
468235	August 20, 2009	Weather
467860	August 20, 2009	Planned Maintenance
467863	August 20, 2009	Planned Maintenance
468721	August 26, 2009	Weather
468725	August 27, 2009	Equipment Failure
468779	August 27, 2009	Equipment Failure
469610	September 10, 2009	Other
469334	September 11, 2009	Planned Maintenance
470011	September 16, 2009	Planned Maintenance
470629	September 30, 2009	Planned Maintenance
470911	September 30, 2009	Equipment Failure
471264	October 7, 2009	Unexplained
471265	October 7, 2009	Equipment Failure
473113	October 17, 2009	Other
473604	October 20, 2009	Equipment Failure
475278	November 7, 2009	Weather

Outage ID	<u>Date</u>	Interruption Cause
475287	November 7, 2009	Equipment Failure
475389	November 12, 2009	Planned Maintenance
475676	November 15, 2009	Planned Maintenance
477964	December 11, 2009	Planned Maintenance
478832	December 19, 2009	Planned Maintenance
479140	December 22, 2009	Equipment Failure
480758	January 15, 2010	Unexplained
480869	January 15, 2010	Other
482980	February 7, 2010	Weather
483809	February 18, 2010	Unexplained
484402	March 1, 2010	Unexplained
484655	March 5, 2010	Weather
485077	March 5, 2010	Weather
485178	March 6, 2010	Weather
485320	March 6, 2010	Planned Maintenance
484788	March 7, 2010	Weather
485517	March 8, 2010	Weather
485705	March 10, 2010	Weather
485914	March 14, 2010	Equipment Failure
485914	March 14, 2010	Planned Maintenance
486129	March 18, 2010	Planned Maintenance
486083	March 18, 2010	Planned Maintenance
486163	March 18, 2010	Planned Maintenance
487240	April 8, 2010	Planned Maintenance
487697	April 20, 2010	Planned Maintenance
488165	April 25, 2010	Planned Maintenance
488743	May 6, 2010	Other
488806	May 8, 2010	Planned Maintenance
490273	June 9, 2010	Other
490544	June 15, 2010	Equipment Failure
490896	June 23, 2010	Planned Maintenance
491302	June 30, 2010	Other
491339	July 1, 2010	Unexplained
491926	July 11, 2010	Planned Maintenance
492130	July 14, 2010	Weather
492307	July 18, 2010	Weather
492411	July 19, 2010	Weather
492549	July 21, 2010	Unexplained
492635	July 25, 2010	Planned Maintenance

Outage ID	Date	Interruption Cause
494018	August 18, 2010	Weather
494041	August 18, 2010	Weather
494624	August 29, 2010	Planned Maintenance
494684	August 29, 2010	Equipment Failure
495201	September 5, 2010	Weather
496399	September 18, 2010	Equipment Failure
504656	September 25, 2010	Planned Maintenance
506834	October 6, 2010	Other
508341	October 24, 2010	Planned Maintenance
508746	October 26, 2010	Planned Maintenance
509488	November 3, 2010	Planned Maintenance
509304	November 4, 2010	Planned Maintenance
510428	November 8, 2010	Other
511253	November 16, 2010	Other
511050	November 16, 2010	Planned Maintenance
514060	December 19, 2010	Planned Maintenance
514435	December 21, 2010	Planned Maintenance
515835	December 27, 2010	Weather
517169	January 13, 2011	Weather
517289	January 13, 2011	Unexplained
517189	January 16, 2011	Planned Maintenance
518883	January 29, 2011	Equipment Failure
518873	January 29, 2011	Equipment Failure
519103	February 1, 2011	Unexplained
519717	February 9, 2011	Equipment Failure
520682	February 21, 2011	Planned Maintenance
522150	March 7, 2011	Equipment Failure
522341	March 10, 2011	Planned Maintenance
522993	March 15, 2011	Planned Maintenance
524246	March 31, 2011	Planned Maintenance
524111	April 1, 2011	Unexplained
524601	April 10, 2011	Planned Maintenance
525703	April 26, 2011	Other
526266	May 3, 2011	Planned Maintenance
526988	May 19, 2011	Planned Maintenance
527272	May 26, 2011	Planned Maintenance
527273	May 27, 2011	Planned Maintenance
527318	May 29, 2011	Planned Maintenance
527785	May 29, 2011	Planned Maintenance

Outage ID	<u>Date</u>	Interruption Cause
527910	May 30, 2011	Planned Maintenance
528554	June 8, 2011	Equipment Failure
530051	July 7, 2011	Equipment Failure
531127	July 21, 2011	Planned Maintenance
531531	July 24, 2011	Weather
531533	July 24, 2011	Weather
531845	July 28, 2011	Other
533337	August 23, 2011	Planned Maintenance
534121	August 30, 2011	Other
535344	September 13, 2011	Other
536123	September 23, 2011	Planned Maintenance
536598	September 28, 2011	Unexplained
536905	October 1, 2011	Equipment Failure
536920	October 2, 2011	Planned Maintenance
537432	October 6, 2011	Other
538174	October 16, 2011	Equipment Failure
538277	October 17, 2011	Other
539286	October 26, 2011	Equipment Failure
540905	November 12, 2011	Equipment Failure
542624	December 5, 2011	Other
542580	December 6, 2011	Planned Maintenance
543085	December 8, 2011	Other
544913	December 8, 2011	Other
543545	December 9, 2011	Weather
543491	December 9, 2011	Weather
544653	December 10, 2011	Weather
544668	December 10, 2011	Weather
544724	December 10, 2011	Equipment Failure
545359	December 15, 2011	Planned Maintenance
546093	December 21, 2011	Equipment Failure
546085	December 22, 2011	Planned Maintenance
555813	April 27, 2012	Planned Maintenance
557237	May 18, 2012	Weather
557133	May 18, 2012	Equipment Failure
557405	May 22, 2012	Weather
557534	May 23, 2012	Other
557529	May 25, 2012	Planned Maintenance
557663	May 27, 2012	Planned Maintenance
557790	May 28, 2012	Equipment Failure

Outage ID	<u>Date</u>	Interruption Cause
558065	June 2, 2012	Planned Maintenance
558265	June 5, 2012	Planned Maintenance
558488	June 7, 2012	Equipment Failure
558450	June 10, 2012	Planned Maintenance
558680	June 12, 2012	Other
558740	June 14, 2012	Planned Maintenance
559037	June 19, 2012	Equipment Failure
559115	June 20, 2012	Equipment Failure
559373	June 27, 2012	Planned Maintenance
559449	June 30, 2012	Planned Maintenance
559702	July 1, 2012	Weather
559775	July 4, 2012	Planned Maintenance
559941	July 4, 2012	Planned Maintenance
560226	July 8, 2012	Weather
561585	July 29, 2012	Other
561447	July 29, 2012	Planned Maintenance
562743	August 17, 2012	Other
563321	August 30, 2012	Planned Maintenance
563699	September 1, 2012	Weather
564004	September 9, 2012	Planned Maintenance
571210	September 16, 2012	Planned Maintenance
575904	October 24, 2012	Planned Maintenance
575942	October 25, 2012	Other
576048	October 25, 2012	Other
576358	November 1, 2012	Planned Maintenance
577228	November 9, 2012	Weather
580416	December 7, 2012	Equipment Failure
580461	December 8, 2012	Planned Maintenance
581323	December 18, 2012	Planned Maintenance
581489	December 21, 2012	Planned Maintenance
587206	January 18, 2013	Planned Maintenance
589444	February 4, 2013	Weather
591368	February 17, 2013	Equipment Failure
591943	February 23, 2013	Planned Maintenance
592387	February 28, 2013	Planned Maintenance
592521	March 1, 2013	Planned Maintenance
593653	March 18, 2013	Planned Maintenance
593660	March 18, 2013	Planned Maintenance
593663	March 19, 2013	Planned Maintenance

Outage ID	Date	Interruption Cause
595029	April 3, 2013	Equipment Failure
595561	April 10, 2013	Planned Maintenance
595549	April 11, 2013	Planned Maintenance
595642	April 11, 2013	Planned Maintenance
595770	April 15, 2013	Planned Maintenance
596486	April 22, 2013	Equipment Failure
596472	April 24, 2013	Planned Maintenance
599563	June 12, 2013	Unexplained Unexplained
599725	June 16, 2013	Weather
601457	July 15, 2013	
601437	•	Equipment Failure Planned Maintenance
001001	July 17, 2013	
602326	July 27, 2013	Weather
603060	August 9, 2013	Equipment Failure
603246	August 15, 2013	Planned Maintenance
603518	August 17, 2013	Equipment Failure
604931	September 11, 2013	Planned Maintenance
605372	September 13, 2013	Planned Maintenance
605945	September 25, 2013	Planned Maintenance
607614	October 15, 2013	Other
609800	November 13, 2013	Planned Maintenance
613226	December 8, 2013	Planned Maintenance
613152	December 8, 2013	Planned Maintenance
613719	December 12, 2013	Planned Maintenance
613900	December 14, 2013	Planned Maintenance
614327	December 18, 2013	Equipment Failure
614701	December 20, 2013	Equipment Failure