

Cause of Outages

State of Minnesota

All Days Primary Cause	Customer Interruptions - Actuals					17-21	19-21	Customer Interruptions - Percent					17-21	19-21
	2017	2018	2019	2020	2021	5 Yr Avg	3 Yr Avg	2017	2018	2019	2020	2021	5 Yr Avg	3 Yr Avg
Equipment - OH	225,381	317,027	209,405	283,531	294,547	265,978	262,494	20%	26%	19%	20%	22%	21%	20%
Equipment - UG	153,379	156,054	140,057	212,294	200,326	172,422	184,226	14%	13%	13%	15%	15%	14%	14%
Lightning	28,234	42,283	44,113	23,042	24,933	32,521	30,696	3%	4%	4%	2%	2%	3%	3%
Other	62,046	51,698	55,931	43,328	65,226	55,646	54,828	6%	4%	5%	3%	5%	5%	4%
Power Supply	38,399	79,709	79,762	53,933	48,154	59,991	60,616	3%	7%	7%	4%	4%	5%	5%
Planned	72,547	84,694	89,170	108,234	90,224	88,974	95,876	6%	7%	8%	8%	7%	7%	8%
Public	104,421	70,243	104,267	149,490	90,553	103,795	114,770	9%	6%	10%	11%	7%	8%	9%
Unknown	67,771	75,153	52,174	87,990	108,725	78,363	82,963	6%	6%	5%	6%	8%	6%	6%
Vegetation	278,138	246,732	251,508	287,523	288,042	270,389	275,691	25%	20%	23%	21%	21%	22%	22%
Weather - Non Lightning)	48	1,478	3,085	5,048	494	2,031	2,876	0%	0%	0%	0%	0%	0%	0%
Wildlife	94,819	80,096	64,059	138,348	156,703	106,805	119,703	8%	7%	6%	10%	11%	8%	9%
All Causes	1,125,183	1,205,167	1,093,531	1,392,761	1,367,927			100%	100%	100%	100%	100%		

State of Minnesota

IEEE MN Reg Normalized Primary Cause	Customer Interruptions - Actuals					17-21	19-21	Customer Interruptions - Percent					17-21	19-21
	2017	2018	2019	2020	2021	5 Yr Avg	3 Yr Avg	2017	2018	2019	2020	2021	5 Yr Avg	3 Yr Avg
Equipment - OH	212,610	291,884	177,739	274,553	285,356	248,428	245,883	23%	26%	19%	21%	24%	22%	21%
Equipment - UG	147,278	155,620	132,264	210,985	199,257	169,081	180,835	16%	14%	14%	17%	16%	15%	16%
Lightning	19,702	41,677	31,997	21,115	17,105	26,319	23,406	2%	4%	3%	2%	1%	2%	2%
Other	56,267	47,457	49,028	41,577	63,115	51,489	51,240	6%	4%	5%	3%	5%	5%	5%
Power Supply	30,996	74,551	64,219	47,918	38,605	51,258	50,247	3%	7%	7%	4%	3%	5%	5%
Planned	62,877	83,562	82,982	106,347	85,696	84,293	91,675	7%	7%	9%	8%	7%	8%	8%
Public	102,862	65,282	101,957	149,145	88,107	101,471	113,070	11%	6%	11%	12%	7%	9%	10%
Unknown	58,342	70,929	47,267	82,890	101,032	72,092	77,063	6%	6%	5%	6%	8%	6%	7%
Vegetation	148,588	219,279	202,216	200,434	175,487	189,201	192,712	16%	19%	21%	16%	15%	17%	17%
Weather - Non Lightning)	48	1,478	2,620	5,046	191	1,877	2,619	0%	0%	0%	0%	0%	0%	0%
Wildlife	94,207	80,045	63,206	138,213	155,731	106,280	119,050	10%	7%	7%	11%	13%	9%	10%
All Causes	933,777	1,131,764	955,495	1,278,223	1,209,682			100%	100%	100%	100%	100%		

Cause of Outages

Metro East Work Region

All Days Primary Cause	Customer Interruptions - Actuals					17-21 5 Yr Avg	19-21 3 Yr Avg	Customer Interruptions - Percent					17-21 5 Yr Avg	19-21 3 Yr Avg
	2017	2018	2019	2020	2021			2017	2018	2019	2020	2021		
Equipment - OH	87,802	122,575	48,988	129,714	92,998	96,415	90,567	22%	31%	14%	28%	21%	23%	21%
Equipment - UG	56,261	47,324	48,396	56,160	60,074	53,643	54,877	14%	12%	13%	12%	14%	13%	13%
Lightning	4,171	11,769	8,648	10,482	9,556	8,925	9,562	1%	3%	2%	2%	2%	2%	2%
Other	12,645	11,012	31,028	17,986	17,780	18,090	22,265	3%	3%	9%	4%	4%	5%	6%
Power Supply	7,060	3,687	13,633	12,633	2,104	7,823	9,457	2%	1%	4%	3%	0%	2%	2%
Planned	19,294	35,927	33,058	47,448	38,436	34,833	39,647	5%	9%	9%	10%	9%	8%	9%
Public	44,143	30,942	30,213	46,276	39,211	38,157	38,567	11%	8%	8%	10%	9%	9%	9%
Unknown	17,581	18,029	13,405	11,282	14,273	14,914	12,987	4%	4%	4%	2%	3%	4%	3%
Vegetation	114,174	96,735	114,058	97,590	120,676	108,647	110,775	29%	24%	32%	21%	28%	27%	27%
Weather - Non Lightning)	5	1	178	1	1	37	60	0%	0%	0%	0%	0%	0%	0%
Wildlife	27,969	22,923	17,507	27,776	40,448	27,325	28,577	7%	6%	5%	6%	9%	7%	7%
All Causes	391,105	400,924	359,112	457,348	435,557			100%	100%	100%	100%	100%		

Metro East Work Region

IEEE MN Reg Normalized Primary Cause	Customer Interruptions - Actuals					17-21 5 Yr Avg	19-21 3 Yr Avg	Customer Interruptions - Percent					17-21 5 Yr Avg	19-21 3 Yr Avg
	2017	2018	2019	2020	2021			2017	2018	2019	2020	2021		
Equipment - OH	85,311	119,216	42,129	129,333	87,872	92,772	86,445	27%	31%	13%	30%	24%	25%	23%
Equipment - UG	55,917	47,266	48,175	55,721	59,381	53,292	54,426	18%	12%	15%	13%	16%	15%	15%
Lightning	2,612	11,246	4,829	10,346	2,536	6,314	5,904	1%	3%	2%	2%	1%	2%	2%
Other	9,120	10,923	27,022	17,909	17,366	16,468	20,766	3%	3%	9%	4%	5%	5%	6%
Power Supply	3,181	3,687	13,633	12,633	0	6,627	8,755	1%	1%	4%	3%	0%	2%	2%
Planned	17,285	35,458	30,376	47,342	37,312	33,555	38,343	6%	9%	10%	11%	10%	9%	10%
Public	44,142	25,981	30,211	46,031	39,211	37,115	38,484	14%	7%	10%	11%	11%	10%	10%
Unknown	13,601	16,175	13,393	10,701	8,857	12,545	10,984	4%	4%	4%	2%	2%	4%	3%
Vegetation	54,831	94,347	88,539	74,138	67,491	75,869	76,723	17%	24%	28%	17%	19%	21%	21%
Weather - Non Lightning)	5	1	178	1	1	37	60	0%	0%	0%	0%	0%	0%	0%
Wildlife	27,823	22,912	17,500	27,771	40,183	27,238	28,485	9%	6%	6%	6%	11%	8%	8%
All Causes	313,828	387,212	315,985	431,926	360,210			100%	100%	100%	100%	100%		

Cause of Outages

Metro West Work Region

All Days	Customer Interruptions - Actuals					17-21	19-21	Customer Interruptions - Percent					17-21	19-21
Primary Cause	2017	2018	2019	2020	2021	5 Yr Avg	3 Yr Avg	2017	2018	2019	2020	2021	5 Yr Avg	3 Yr Avg
Equipment - OH	77,038	136,996	85,591	105,060	138,339	108,605	109,663	15%	25%	19%	15%	19%	19%	18%
Equipment - UG	84,843	93,990	79,495	135,620	128,398	104,469	114,504	17%	17%	18%	20%	18%	18%	18%
Lightning	16,592	21,743	12,518	3,292	9,534	12,736	8,448	3%	4%	3%	0%	1%	2%	2%
Other	32,685	28,585	16,430	17,336	33,149	25,637	22,305	6%	5%	4%	2%	5%	4%	4%
Power Supply	3,828	18,800	18,979	7,724	6,233	11,113	10,979	1%	3%	4%	1%	1%	2%	2%
Planned	39,224	32,239	37,810	41,303	34,947	37,105	38,020	8%	6%	8%	6%	5%	7%	6%
Public	40,854	30,507	44,979	90,284	36,704	48,666	57,322	8%	6%	10%	13%	5%	8%	9%
Unknown	40,918	44,857	27,857	44,432	84,824	48,578	52,371	8%	8%	6%	6%	12%	8%	8%
Vegetation	123,525	100,997	90,773	151,619	133,891	120,161	125,428	24%	18%	20%	22%	19%	21%	20%
Weather - Non Lightning)	37	1,322	1,289	5,021	190	1,572	2,167	0%	0%	0%	1%	0%	0%	0%
Wildlife	50,836	43,092	34,962	92,262	106,193	65,469	77,806	10%	8%	8%	13%	15%	11%	12%
All Causes	510,380	553,128	450,683	693,953	712,402			100%	100%	100%	100%	100%		

Metro West Work Region

IEEE MN Reg Normalized	Customer Interruptions - Actuals					17-21	19-21	Customer Interruptions - Percent					17-21	19-21
Primary Cause	2017	2018	2019	2020	2021	5 Yr Avg	3 Yr Avg	2017	2018	2019	2020	2021	5 Yr Avg	3 Yr Avg
Equipment - OH	72,124	119,400	82,501	97,418	137,295	101,748	105,738	17%	23%	19%	16%	21%	19%	19%
Equipment - UG	79,086	93,654	72,018	135,014	128,131	101,581	111,721	19%	18%	17%	22%	19%	19%	19%
Lightning	9,860	21,669	11,499	2,262	9,157	10,889	7,639	2%	4%	3%	0%	1%	2%	1%
Other	30,482	28,584	15,085	16,329	32,533	24,603	21,316	7%	5%	4%	3%	5%	5%	4%
Power Supply	3,828	18,800	18,979	5,865	6,233	10,741	10,359	1%	4%	4%	1%	1%	2%	2%
Planned	31,920	32,176	35,708	40,420	34,756	34,996	36,961	8%	6%	8%	7%	5%	7%	7%
Public	39,297	30,507	44,899	90,202	34,393	47,860	56,498	9%	6%	11%	15%	5%	9%	10%
Unknown	36,677	44,418	27,099	40,742	82,787	46,345	50,209	9%	8%	6%	7%	13%	9%	9%
Vegetation	69,179	89,488	80,889	92,616	86,242	83,683	86,582	16%	17%	19%	15%	13%	16%	16%
Weather - Non Lightning)	37	1,322	1,289	5,019	190	1,571	2,166	0%	0%	0%	1%	0%	0%	0%
Wildlife	50,372	43,052	34,765	92,132	105,517	65,168	77,471	12%	8%	8%	15%	16%	12%	13%
All Causes	422,862	523,070	424,731	618,019	657,234			100%	100%	100%	100%	100%		

Cause of Outages

Northwest Work Region(Includes ND region custs/out in state of MN)

All Days Primary Cause	Customer Interruptions - Actuals					17-21		19-21		Customer Interruptions - Percent					17-21		19-21	
	2017	2018	2019	2020	2021	5 Yr Avg		3 Yr Avg		2017	2018	2019	2020	2021	5 Yr Avg		3 Yr Avg	
Equipment - OH	36,176	34,499	28,206	27,769	36,619	32,654		30,865		31%	33%	25%	23%	37%	30%		28%	
Equipment - UG	5,193	7,335	5,022	10,950	3,839	6,468		6,604		4%	7%	4%	9%	4%	6%		6%	
Lightning	2,027	5,552	13,639	1,773	1,908	4,980		5,773		2%	5%	12%	1%	2%	4%		5%	
Other	7,502	2,698	2,283	3,378	4,553	4,083		3,405		6%	3%	2%	3%	5%	4%		3%	
Power Supply	17,539	16,817	20,318	16,149	19,661	18,097		18,709		15%	16%	18%	13%	20%	16%		17%	
Planned	8,750	10,729	7,363	11,840	7,955	9,327		9,053		7%	10%	6%	10%	8%	8%		8%	
Public	6,115	5,945	12,273	7,850	7,516	7,940		9,213		5%	6%	11%	6%	8%	7%		8%	
Unknown	5,696	3,970	1,426	23,734	3,055	7,576		9,405		5%	4%	1%	20%	3%	7%		8%	
Vegetation	24,517	13,926	19,873	14,809	10,368	16,699		15,017		21%	13%	17%	12%	11%	15%		13%	
Weather - Non Lightning)	0	73	8	3	0	17		4		0%	0%	0%	0%	0%	0%		0%	
Wildlife	3,197	2,442	3,197	2,534	3,201	2,914		2,977		3%	2%	3%	2%	3%	3%		3%	
All Causes	116,712	103,986	113,608	120,789	98,675					100%	100%	100%	100%	100%				

Northwest Work Region(Includes ND region custs/out in state of MN)

IEEE MN Reg Normalized Primary Cause	Customer Interruptions - Actuals					17-21		19-21		Customer Interruptions - Percent					17-21		19-21	
	2017	2018	2019	2020	2021	5 Yr Avg		3 Yr Avg		2017	2018	2019	2020	2021	5 Yr Avg		3 Yr Avg	
Equipment - OH	30,810	34,499	24,035	27,010	36,611	30,593		29,219		34%	33%	25%	24%	40%	31%		30%	
Equipment - UG	5,193	7,335	4,968	10,839	3,808	6,429		6,538		6%	7%	5%	9%	4%	6%		6%	
Lightning	1,786	5,552	11,144	1,449	1,902	4,367		4,832		2%	5%	12%	1%	2%	4%		5%	
Other	7,451	2,698	1,490	2,711	4,553	3,781		2,918		8%	3%	2%	2%	5%	4%		3%	
Power Supply	14,015	16,817	16,331	12,703	16,897	15,353		15,310		16%	16%	17%	11%	18%	16%		16%	
Planned	8,393	10,729	7,246	11,171	5,507	8,609		7,975		9%	10%	8%	10%	6%	9%		8%	
Public	6,114	5,945	12,273	7,850	7,516	7,940		9,213		7%	6%	13%	7%	8%	8%		9%	
Unknown	4,488	3,970	773	23,734	3,054	7,204		9,187		5%	4%	1%	21%	3%	7%		8%	
Vegetation	8,656	13,926	14,174	14,316	9,139	12,042		12,543		10%	13%	15%	13%	10%	12%		12%	
Weather - Non Lightning)	0	73	8	3	0	17		4		0%	0%	0%	0%	0%	0%		0%	
Wildlife	3,195	2,442	2,573	2,534	3,194	2,788		2,767		4%	2%	3%	2%	3%	3%		3%	
All Causes	90,101	103,986	95,015	114,320	92,181					100%	100%	100%	100%	100%				

Cause of Outages

Southeast Work Region(Includes SD region custs/outs in state of MN)

All Days Primary Cause	Customer Interruptions - Actuals					17-21		19-21		Customer Interruptions - Percent					17-21		19-21	
	2017	2018	2019	2020	2021	5 Yr Avg		3 Yr Avg		2017	2018	2019	2020	2021	5 Yr Avg		3 Yr Avg	
Equipment - OH	24,365	22,957	46,620	20,988	26,591	28,304		31,400		23%	16%	27%	17%	22%	21%		22%	
Equipment - UG	7,082	7,405	7,144	9,564	8,015	7,842		8,241		7%	5%	4%	8%	7%	6%		6%	
Lightning	5,444	3,219	9,308	7,495	3,935	5,880		6,913		5%	2%	5%	6%	3%	4%		5%	
Other	9,214	9,403	6,190	4,628	9,744	7,836		6,854		9%	6%	4%	4%	8%	6%		5%	
Power Supply	9,972	40,405	26,832	17,427	20,156	22,958		21,472		9%	27%	16%	14%	17%	17%		16%	
Planned	5,279	5,799	10,939	7,643	8,886	7,709		9,156		5%	4%	6%	6%	7%	6%		7%	
Public	13,309	2,849	16,802	5,080	7,122	9,032		9,668		12%	2%	10%	4%	6%	7%		7%	
Unknown	3,576	8,297	9,486	8,542	6,573	7,295		8,200		3%	6%	6%	7%	5%	5%		6%	
Vegetation	15,922	35,074	26,804	23,505	23,107	24,882		24,472		15%	24%	16%	19%	19%	19%		18%	
Weather - Non Lightning)	6	82	1,610	23	303	405		645		0%	0%	1%	0%	0%	0%		0%	
Wildlife	12,817	11,639	8,393	15,776	6,861	11,097		10,343		12%	8%	5%	13%	6%	9%		8%	
All Causes	106,986	147,129	170,128	120,671	121,293					100%	100%	100%	100%	100%				

Southeast Work Region(Includes SD region custs/outs in state of MN)

IEEE MN Reg Normalized Primary Cause	Customer Interruptions - Actuals					17-21		19-21		Customer Interruptions - Percent					17-21		19-21	
	2017	2018	2019	2020	2021	5 Yr Avg		3 Yr Avg		2017	2018	2019	2020	2021	5 Yr Avg		3 Yr Avg	
Equipment - OH	24,365	18,769	29,074	20,792	23,578	23,316		24,481		23%	16%	24%	18%	24%	21%		22%	
Equipment - UG	7,082	7,365	7,103	9,411	7,937	7,780		8,150		7%	6%	6%	8%	8%	7%		7%	
Lightning	5,444	3,210	4,525	7,058	3,510	4,749		5,031		5%	3%	4%	6%	4%	4%		4%	
Other	9,214	5,252	5,431	4,628	8,663	6,638		6,241		9%	4%	5%	4%	9%	6%		6%	
Power Supply	9,972	35,247	15,276	16,717	15,475	18,537		15,823		9%	30%	13%	15%	15%	16%		14%	
Planned	5,279	5,199	9,652	7,414	8,121	7,133		8,396		5%	4%	8%	7%	8%	6%		8%	
Public	13,309	2,849	14,574	5,062	6,987	8,556		8,874		12%	2%	12%	4%	7%	8%		8%	
Unknown	3,576	6,366	6,002	7,713	6,334	5,998		6,683		3%	5%	5%	7%	6%	5%		6%	
Vegetation	15,922	21,518	18,614	19,364	12,615	17,607		16,864		15%	18%	16%	17%	13%	16%		15%	
Weather - Non Lightning)	6	82	1,145	23	0	251		389		0%	0%	1%	0%	0%	0%		0%	
Wildlife	12,817	11,639	8,368	15,776	6,837	11,087		10,327		12%	10%	7%	14%	7%	10%		9%	
All Causes	106,986	117,496	119,764	113,958	100,057					100%	100%	100%	100%	100%				