

August 16, 2023

Mr. Will Seuffert Executive Secretary Minnesota Public Utilities Commission 121 7th Place East, Suite 350 St. Paul, MN 55101-2147

RE: In the Matter of Otter Tail Power Company 2022 Annual Safety, Reliability and Service Quality Report and Proposed SAIFI, SAIDI and CAIDI Reliability Standards for 2023 Docket No. E017/M-23-76 IEEE Supplemental Filing

Dear Mr. Seuffert:

Otter Tail Power Company (Otter Tail) submits this IEEE Supplemental filing in the abovereferenced matter in compliance with ordering paragraph 3 of the Minnesota Public Utilities Commission's Order dated November 9, 2022, in Docket No. E017/M-22-159 (In the matter of Otter Tail Power Company's 2021 Annual Safety, Reliability and Service Quality Report and Proposed SAIFI, SAIDI and CAIDI Reliability Standards for 2022 and future standards).

3. Set Otter Tail Power's 2022 statewide Reliability Standard at the IEEE benchmarking 2nd Quartile for medium utilities. Set Otter Tail's work center reliability standards at the IEEE benchmarking 2nd quartile for medium utilities. **Require a supplemental filing to Otter Tail Power's 2022 SQSR report 30 days after IEEE publishes the 2022 benchmarking results, with an explanation for any standards the utility did not meet.**

The attached IEEE 2022 Benchmark Reliability Survey results were completed July 19, 2023.

Table 1 shows Otter Tail's 2022 normalized SAIFI, CAIDI and SAIDI results based on the IEEE 2.5 Beta Method for the entire Minnesota system, compared with the IEEE benchmarking second quartile for medium sized utilities. Otter Tail's **2022 results were gathered by our Interruption Monitoring System which captures customer minutes and sustained customer interruptions at the feeder level.**



Table 1

	SAIDI IEEE	SAIFI IEEE	CAIDI IEEE
2022 IEEE Benchmark Median for Medium Sized Utility	143	1.11	134
OTP MN System Wide - Actual Results	119.77	1.62	73.83

SAIFI, the measurement of interruption frequency, exceeds the IEEE benchmark median results for medium sized utilities due to the fact we serve several rural communities with low customer densities. This rural demographic requires greater system exposure, i.e. greater transmission distances, when compared to most of the benchmark survey participants. As noted in Otter Tail's SRSQ filing, we are currently in the process of migrating to more granular interruption data from our reporting in the 2024 timeframe. At that time, it's expected we will see impacts to all metrics.

Otter Tail has electronically filed this document with the Minnesota Public Utilities Commission and on all persons on the official service list for the above-referenced docket. A Certificate of Service is also enclosed.

Please contact me at (218) 739-8552 or rjensen@otpco.com, should you have any questions.

Sincerely,

/s/ *ROD D. JENSEN* Rod D. Jensen Senior Reliability Engineer

lcd Enclosures By electronic filing c: Service List





IEEE Benchmark Year 2023 Results for 2022 Data

2023 Distribution Reliability Working Group Meeting

July 19, 2023 Orlando, FL

Power & Energy Society*

History of the Study

Background

- 1. Initiated in 2003, conducted annually
- 2. Participants are anonymous with key identifier to retain anonymity
- 3. Participation list is not revealed to anyone
- 4. Each participant can choose to share their results
- 5. No inference is made about good or bad reliability
- 6. Intended to provide information for users to assess their performance relative to peers
- 7. Called the 2023 Study (for 2022 Results)

Benchmarking



Using annual key metrics (SAIDI, SAIFI and CAIDI) to assess performance of a system may be useful, however, needs to be tempered with judgment

DRWG Study attempts to identify various aspects that could cause a difference in reported metrics

Data may not be directly comparable, since

- Data collection & system differences exist
- Certain exclusion differences can occur, although we strive to have the differences minimized
- No exclusions for performance beyond catastrophic event day levels which could influence tmed in subsequent years and then roll off

IEEE 1366-2003/2012

- addresses data issues by clearly defining the rules (i.e. what data should be excluded)
- It DOES NOT address the data collection issues
- Companies may not report all forms of outages, due to data collection issues or other reasons



2023 Benchmark Results

For calendar data 2022



Regions represented by the participants 2023 Benchmark Study

Reports on reliability for just over 70 million customers represented by 74 operating companies



Respondents in 2023: 74



About 260 companies have responded during 21-year history

Weighted North American Performance	SAIDI (minutes) (2022/2021)	SAIFI (interruptions) (2022/2021)	CAIDI (minutes) (2022/2021)
Total	327 vs 543	1.43 vs 1.62	228 vs 335
Underlying	137 vs 165	1.15 vs 1.265	137 vs 130
Underlying Distribution	128 vs 153	0.92 vs 1.113	138 vs 137
Underlying Feed	11.9 vs 12	0.11 vs 0.153	106 vs 77
Underlying Planned	13 vs 17	0.09 vs 0.10	147 vs 164
Major Events	170 vs 378	0.287 vs 0.355	593 vs 1,064
Major Event Distribution	151 vs 342	0.244 vs 0.297	621 vs 1,151
Major Event Feed	14 vs 37	0.031 vs 0.059	454 vs 623

ALL	74		SAIDI	SAIDI	SAIDI			SAIFI	SAIFI		CAIDI	CAIDI	CAIDI
		SAIDI ALL	IEEE	WOF	WOP	SAIFI ALL	SAIFI IEEE	WOF	WOP	CAIDI ALL	IEEE	WOF	WOP
	MIN	38	22	22	22	0.39	0.20	0.20	0.20	42	39	42	41
	Q1	163	90	86	84	1.12	0.84	0.77	0.68	138	106	109	107
	MEDIAN	250	131	119	111	1.35	1.09	0.93	0.86	183	128	133	134
	Q3	455	191	171	158	1.82	1.47	1.25	1.14	277	149	155	153
	MAX	1711	582	556	518	4.15	2.45	2.42	2.05	603	275	279	289



Respondents by Utility Size

Quartiles

00	4		SAIDI	SAIDI	SAIDI			SAIFI	SAIFI		CAIDI	CAIDI	CAIDI
0,0		SAIDI ALL	IEEE	WOF	WOP	SAIFI ALL	SAIFI IEEE	WOF	WOP	CAIDI ALL	IEEE	WOF	WOP
100	MIN	126	86	45	32	1.24	1.04	0.45	0.31	101	83	101	103
V I	Q1	374	166	125	108	1.75	1.26	0.91	0.75	204	100	133	138
AL	MEDIAN	593	193	165	153	1.95	1.39	1.12	1.02	301	125	147	150
SM	Q3	923	207	191	183	2.52	1.55	1.22	1.15	365	151	157	160
	MAX	1506	247	231	216	4.15	1.83	1.29	1.17	369	170	179	185
	10		SAIDI	SAIDI	SAIDI			SAIFI	SAIFI		CAIDI	CAIDI	CAIDI
	42	SAIDI ALL	IEEE	WOF	WOP	SAIFI ALL	SAIFI IEEE	WOF	WOP	CAIDI ALL	IEEE	WOF	WOP
NU	MIN	45	22	22	22	0.39	0.20	0.20	0.20	45	43	43	41
EDI	Q1	167	97	92	86	1.17	0.86	0.77	0.68	142	110	113	112
Σ	MEDIAN	265	143	122	113	1.41	1.11	0.92	0.87	179	134	139	137
	Q3	420	193	188	158	1.90	1.59	1.46	1.27	277	149	160	160
	MAX	1711	491	479	443	2.84	2.45	2.42	2.05	603	214	222	232
0	20		SAIDI	SAIDI	SAIDI			SAIFI	SAIFI		CAIDI	CAIDI	CAIDI
0,0(20	SAIDI ALL	IEEE	WOF	WOP	SAIFI ALL	SAIFI IEEE	WOF	WOP	CAIDI ALL	IEEE	WOF	WOP
000	MIN	38	32	31	29	0.59	0.52	0.52	0.43	42	39	42	42
GE >1,	Q1	160	85	85	81	0.99	0.82	0.79	0.70	136	101	103	103
	MEDIAN	196	115	111	98	1.25	1.02	0.93	0.82	183	120	123	123
AR	Q3	402	167	157	145	1.71	1.21	1.07	1.02	266	143	145	147
	MAX	1055	582	556	518	2.61	2.12	1.99	1.79	490	275	279	289



Historic SAIDI Quartiles Without Major Events & Total





Historic SAIFI Quartiles

Without Major Events & Total





Historic CAIDI Quartiles

Without Major Events & Total





Total SAIDI















IEEE SAIFI





Total CAIDI





IEEE CAIDI







Looking at Total Reliability Metrics

By Responsible System/ME & Underlying

Peer utilities provide

- Total daily data,
- After removing transmission outages and
- After removing transmission and planned outages.

We calculate:

- Major events
- Underlying distribution
- Underlying feed (transmission and loss of generation)
- Planned
- Major event distribution

• Major event feed





Peer utilities provide

- Total daily data,
- After removing transmission outages and
- After removing transmission and planned outages.

We calculate:

- Major events
- Underlying distribution
- Underlying feed (transmission and loss of generation)
- Planned
- Major event distribution

• Major event feed





Peer utilities provide

- Total daily data,
- After removing transmission outages and
- After removing transmission and planned outages.

We calculate:

- Major events
- Underlying distribution
- Underlying feed (transmission and loss of generation)
- Planned
- Major event distribution

• Major event feed





Peer utilities provide

- Total daily data,
- After removing transmission outages and
- After removing transmission and planned outages.

We calculate:

- Major events
- Underlying distribution
- Underlying feed (transmission and loss of generation)
- Planned
- Major event distribution
- Major event feed





After removing transmission

After removing transmission

Underlying feed (transmission

and planned outages.

Underlying distribution

and loss of generation)

Major event distribution

Major event feed

Peer utilities provide

outages and

Major events

We calculate:

Planned

.

.

Total daily data,



2023 SAIDI by Benchmark Area Segment by SAIDI by Dist, Feed and Planned, Underlying & MED UnderlyingPlanSAIFI UnderlyingTranSAIFI MEDTranSAIFI MEDDistSAIFI 5.00 4.00 4th Quartile 3.00 SAIFI Interuptions **3rd Quartile** 2nd Quartile 1st Quartile 2.00 1.00 0.00 U 102 U 102 U 105 U 105 U 105 U 105 U 105 U 125 U158 U46 U80 727 177 177 QUA QU S

Questions



CERTIFICATE OF SERVICE

RE: In the Matter of Otter Power Company 2022 Annual Safety, Reliability and Service Quality Report and Proposed SAIFI, SAIDI and CAIDI Reliability Standards for 2023 Docket No. E017/M-23-76

I, Laura Dewey, hereby certify that I have this day served a copy of the following, or a summary thereof, on Will Seuffert and Sharon Ferguson by e-filing, and to all other persons on the attached service list by electronic service or by First Class Mail.

Otter Tail Power Company IEEE Supplemental Filing

Dated this 16th day of August, 2023.

/s/ LAURA DEWEY

Laura Dewey Regulatory Filing Coordinator Otter Tail Power Company 215 South Cascade Street Fergus Falls MN 56537 (218) 739-8604

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Ray	Choquette	rchoquette@agp.com	Ag Processing Inc.	12700 West Dodge Road PO Box 2047 Omaha, NE 68103-2047	Electronic Service	No	OFF_SL_23-76_M-23-76
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.st ate.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1400 St. Paul,	Electronic Service	Yes	OFF_SL_23-76_M-23-76
				MN 55101			
James C.	Erickson	jericksonkbc@gmail.com	Kelly Bay Consulting	17 Quechee St Superior, WI 54880-4421	Electronic Service	No	OFF_SL_23-76_M-23-76
Sharon	Ferguson	sharon.ferguson@state.mn .us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_23-76_M-23-76
Jessica	Fyhrie	jfyhrie@otpco.com	Otter Tail Power Company	PO Box 496 Fergus Falls, MN 56538-0496	Electronic Service	No	OFF_SL_23-76_M-23-76
Adam	Heinen	aheinen@dakotaelectric.co m	Dakota Electric Association	4300 220th St W Farmington, MN 55024	Electronic Service	No	OFF_SL_23-76_M-23-76
Nick	Kaneski	nick.kaneski@enbridge.co m	Enbridge Energy Company, Inc.	11 East Superior St Ste 125 Duluth, MN 55802	Electronic Service	No	OFF_SL_23-76_M-23-76
James D.	Larson	james.larson@avantenergy .com	Avant Energy Services	220 S 6th St Ste 1300 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_23-76_M-23-76
Kavita	Maini	kmaini@wi.rr.com	KM Energy Consulting, LLC	961 N Lost Woods Rd Oconomowoc, WI 53066	Electronic Service	No	OFF_SL_23-76_M-23-76
Andrew	Moratzka	andrew.moratzka@stoel.co m	Stoel Rives LLP	33 South Sixth St Ste 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_23-76_M-23-76
	1	I	1		I	I	I

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Matthew	Olsen	molsen@otpco.com	Otter Tail Power Company	215 South Cascade Street Fergus Falls, MN 56537	Electronic Service	No	OFF_SL_23-76_M-23-76
Wendi	Olson	wolson@otpco.com	Otter Tail Power Company	215 South Cascade Fergus Falls, MN 56537	Electronic Service	No	OFF_SL_23-76_M-23-76
Generic Notice	Regulatory	regulatory_filing_coordinato rs@otpco.com	Otter Tail Power Company	215 S. Cascade Street Fergus Falls, MN 56537	Electronic Service	No	OFF_SL_23-76_M-23-76
Generic Notice	Residential Utilities Division	residential.utilities@ag.stat e.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_23-76_M-23-76
Will	Seuffert	Will.Seuffert@state.mn.us	Public Utilities Commission	121 7th PI E Ste 350 Saint Paul, MN 55101	Electronic Service	Yes	OFF_SL_23-76_M-23-76
Cary	Stephenson	cStephenson@otpco.com	Otter Tail Power Company	215 South Cascade Street Fergus Falls, MN 56537	Electronic Service	No	OFF_SL_23-76_M-23-76
Stuart	Tommerdahl	stommerdahl@otpco.com	Otter Tail Power Company	215 S Cascade St PO Box 496 Fergus Falls, MN 56537	Electronic Service	No	OFF_SL_23-76_M-23-76