

INDIANA UTILITY REGULATORY COMMISSION ELECTRIC UTILITY RELIABILITY REPORT 2020

Each investor-owned electric utility (IOU) in Indiana is required to file a reliability report annually with the Indiana Utility Regulatory Commission (IURC or Commission) in compliance with 170 IAC 4-1-23(e). This document serves as a compilation of the reports filed for 2020. This Report includes a graph for each IOU to illustrate the trends in these reliability metrics through 2020 with data starting as early as 2002.

The utilities provide the following three reliability indices in their annual reports to the IURC.

- System Average Interruption Frequency Index (SAIFI): This is the average number of interruptions per customer. It is calculated by dividing the total number of customer interruptions by the total number of customers.
- System Average Interruption Duration Index (SAIDI): SAIDI is the average minutes of interruption per customer. It is calculated by dividing the sum of all customer interruption durations (in minutes) by the total number of customers.
- Customer Average Interruption Duration Index (CAIDI): CAIDI is the average duration of interruptions or the time to restore service to interrupted customers. It is calculated by dividing SAIDI by SAIFI.

Each utility reports its reliability indices with and without major events (Major Event Days or MEDs). Major events are primarily storms or weather events that are more destructive than normal storm patterns. However, major events may also include ice storms, earthquakes, floods, fires, high winds / tornados, and other disasters. Historically, it is important to note that the same definition of “major event” has not been used by all electric utilities, which makes comparisons with some other utilities more difficult. In this Report, it is not clear that each utility was using the exact same version of the Institute of Electrical and Electronics Engineers (IEEE Standard 1366). This IEEE standard involves the calculation of a threshold of SAIDI minutes based on data from the previous five years. Any day the threshold is exceeded, it constitutes a MED. The provision of indices that exclude major events normalizes the data by eliminating interruptions over which the utility has little or no control. In addition, there can be considerable variation in a wide range of major events that result in significant damage and require time to make needed repairs. The following table summarizes the number of MEDs and Major Events for each IOU in Indiana during 2020. Note that a single event can carry over to additional days that result in multiple MEDs.

UTILITY COMPANY	MAJOR EVENT DAYS	MAJOR EVENTS
Duke Energy Indiana (Duke)	6	5
Indiana Michigan Power Company (I&M)	5	5
AES Indiana (formerly known as Indianapolis Power & Light, or IPL)	6	6
Northern Indiana Public Service Company, LLC (NIPSCO)	13	5
Southern Indiana Gas and Electric Company (d/b/a CenterPoint Energy Indiana)(formerly Vectren) (CenterPoint)	1	1

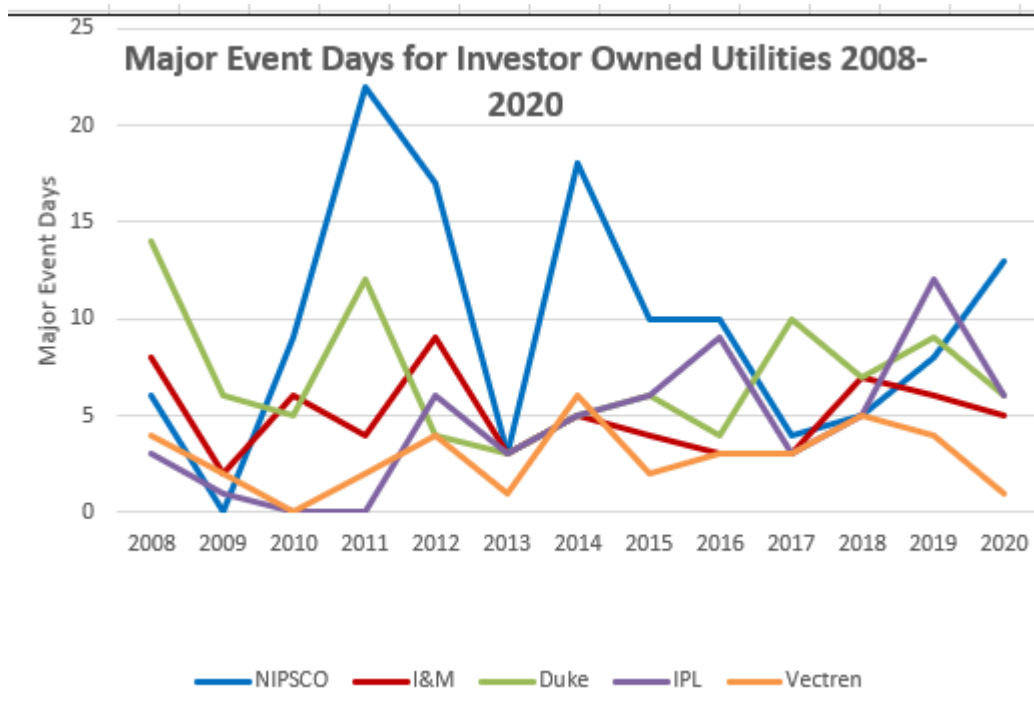
Reliability metrics, used appropriately, provide useful information on each utility's distribution system, especially if the metrics are considered over several years to lessen the potential that a short series of information may be atypical. Comparisons among utilities should be carefully done since they all have different circumstances (e.g., some serve areas that are more densely populated, some serve multistory office buildings that may be counted as a single customer, heavily forested areas may pose a greater risk of outages, weather differences, age of infrastructure). In addition to the causes of outages that were mentioned previously and are beyond the control of electric utilities, the solutions for improving future reliability are likely to be different for each utility. It is also important to note that perfect reliability is not attainable and efforts to improve these metrics are often expensive. Consistent with the legislative direction to the Commission for utilities to maintain and enhance system reliability, such as the TDSIC statute, the IURC encourages utilities to continue to look for ways to detect problems, expedite repairs, and recovery from major events. This Report provides an opportunity for policymakers, utilities, and customers to better understand the evolution of reliability improvements. When compared to Commission-ordered annual performance metric reports that cover a range of utility operations, the reliability statistics can be placed in a broader context of utility performance measured over time.

ELECTRIC SERVICE TERRITORIES OF INVESTOR-OWNED UTILITIES



History of Major Event Days for Investor-Owned Utilities in Indiana

Major Event Days for Investor Owned Utilities 2008-2020														
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Mean
NIPSCO	6	0	9	22	17	3	18	10	10	4	5	8	13	10
Duke	14	6	5	12	4	3	5	6	4	10	7	9	6	7
IPL	3	1	0	0	6	3	5	6	9	3	5	12	6	5
CtrPoint	4	2	0	2	4	1	6	2	3	3	5	4	1	3
I&M	8	2	6	4	9	3	5	4	3	3	7	6	5	5



ELECTRIC RELIABILITY INCLUDING MAJOR EVENTS

Electric Reliability Including Major Events*																		
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
NIPSCO																		
SAIFI	1.65	1.38	1.24	1.40	2.23	1.80	0.88	1.36	1.38	1.44	1.45	1.53	1.16	1.26	1.11	1.33	1.58	0.90
SAIDI	498.00	317.00	258.00	317.00	1073.0	882.00	140.00	505.00	371.00	428.00	520.00	603.00	248.00	231.00	152.87	244.26	359.00	138.00
CAIDI	301.80	229.00	208.00	227.00	480.00	490.00	158.00	372.00	269.00	297.00	359.00	395.00	214.00	184.00	138.00	184.00	227.00	153.00
Duke																		
SAIFI	1.58	1.66	1.59	1.63	1.41	2.48	1.76	1.58	2.07	1.52	1.38	1.31	1.27	1.34	.99	1.45	1.38	1.25
SAIDI	201.00	255.00	282.00	203.00	178.00	689.00	293.00	195.00	630.00	216.00	257.00	186.00	211.00	289.79	138.30	366.00	220.60	279.00
CAIDI	128.00	153.00	177.00	125.00	126.00	278.00	166.00	124.00	304.00	143.00	187.00	142.00	166.10	216.69	138.60	252.90	160.00	223.00
IPL / AES																		
SAIFI	0.90	0.81	0.90	1.07	0.76	1.54	1.10	1.04	0.86	1.04	0.71	0.96	0.94	1.17	86.00	0.95	1.22	1.16
SAIDI	98.00	76.70	66.50	105.15	46.99	358.98	158.39	71.15	75.08	124.92	92.30	189.98	219.45	232.23	60.00	149.03	213.12	155.00
CAIDI	108.40	94.10	73.90	98.01	61.70	232.96	144.63	68.13	87.63	119.66	130.01	198.63	233.12	198.48	81.00	131.42	174.55	133.00
CenterPoint																		
SAIFI	1.27	2.36	2.05	1.87	1.23	2.33	2.56	1.02	2.16	1.24	0.78	1.47	0.90	1.26	0.64	1.09	1.37	1.00
SAIDI	111.00	932.40	376.00	241.00	89.00	859.00	2889.0	89.70	711.30	117.30	60.10	314.30	81.30	260.90	59.00	140.40	174.00	121.90
CAIDI	87.00	394.70	185.00	128.00	72.00	369.00	1126.00	88.30	329.90	94.90	76.60	213.50	90.60	206.90	92.00	128.50	127.30	121.00
I&M																		
SAIFI	1.56	1.42	1.31	1.24	1.24	1.63	0.91	0.98	1.12	1.39	0.96	0.96	1.24	1.06	1.11	1.28	1.38	0.94
SAIDI	594.20	291.40	1131.60	222.00	199.40	1164.30	121.50	392.30	258.00	1071.2	374.50	305.90	390.30	255.00	257.90	262.80	281.90	154.10
CAIDI	380.20	204.70	863.00	178.70	161.20	712.80	133.20	399.80	230.30	772.50	392.00	317.80	313.90	240.60	233.30	206.00	204.20	164.40

Notes

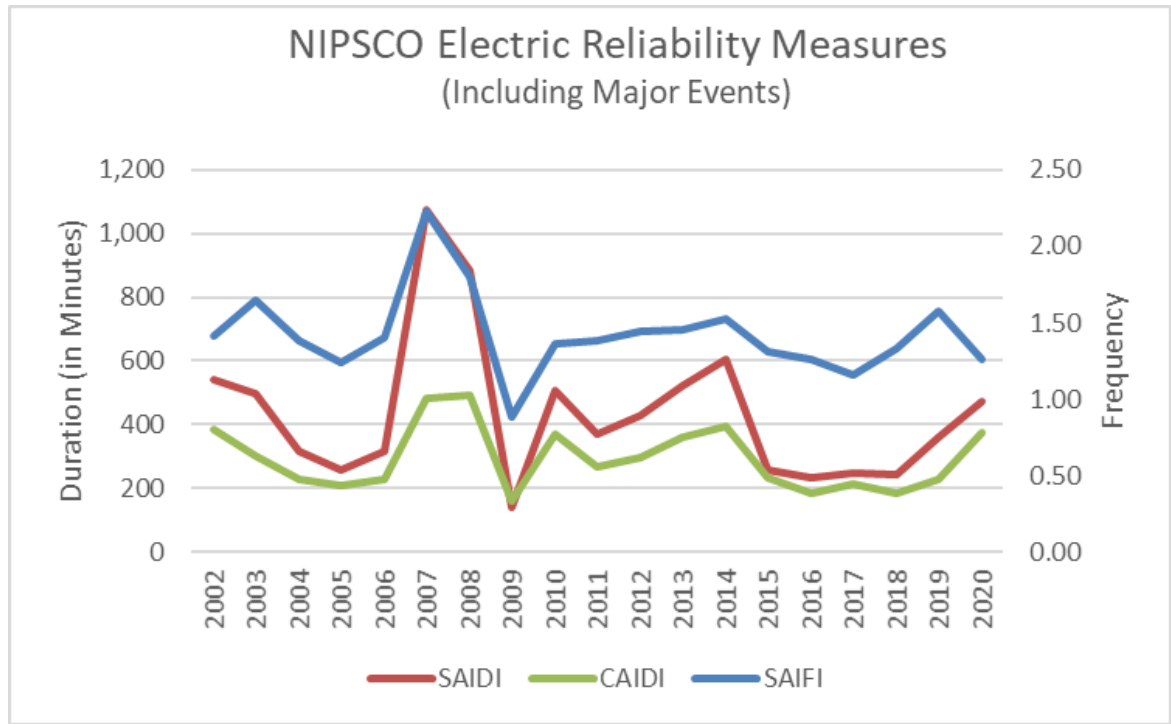
SAIFI: System Average Interruption Frequency Index; (# of customers who experience outage) / (total # of customers)

SAIDI: System Average Interruption Duration Index; (duration or time of service interruptions) / (total # of customers)

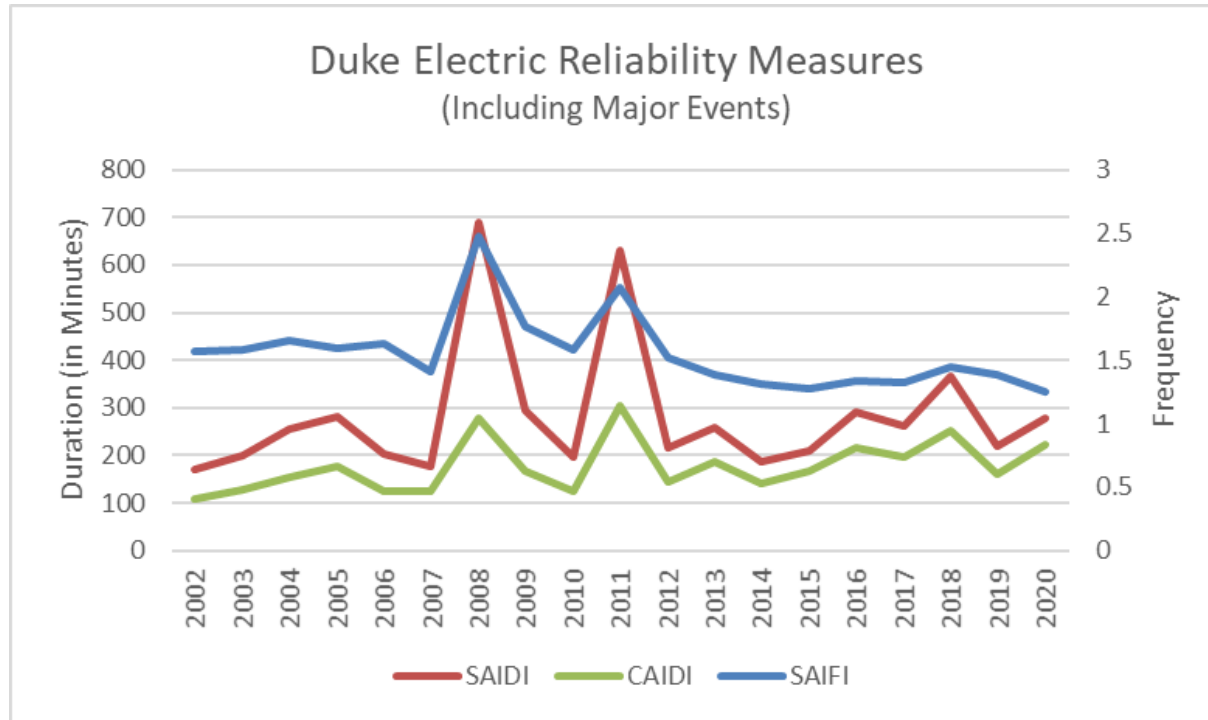
CAIDI: Customer Average Interruption Duration Index; (SAIDI) / (SAIFI)

*Major events are storms or weather events that are more destructive than normal storm patterns. The same definition of "major event" is not used by all utilities.

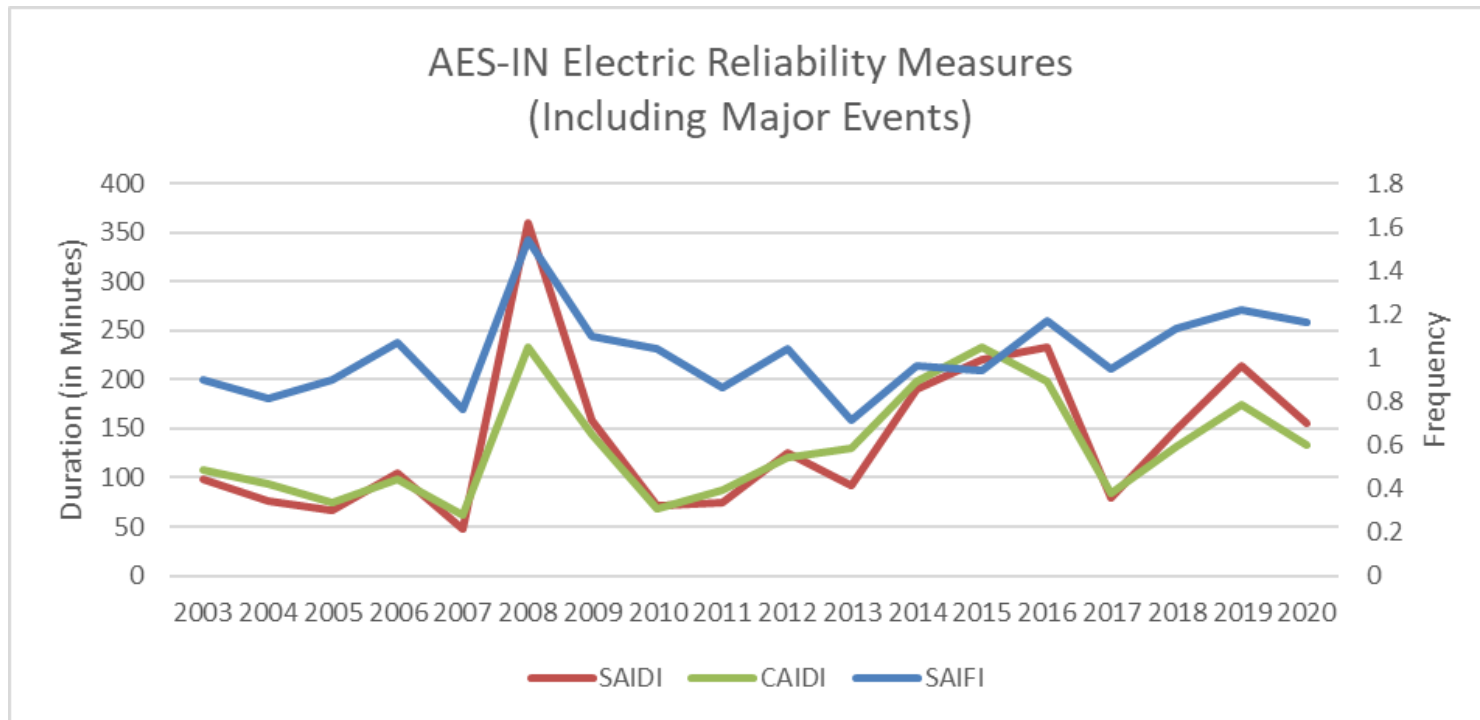
Electric Reliability Including Major Events																				
NIPSCO		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SAIFI		1.41	1.65	1.38	1.24	1.40	2.23	1.80	0.88	1.36	1.38	1.44	1.45	1.53	1.31	1.26	1.16	1.33	1.58	1.264
SAIDI		542	498	317	258	317	1,073	882	140	505	371	428	520	603	259	231	248	244	359	473
CAIDI		385	302	229	208	227	480	490	158	372	269	297	359	395	233	184	214	184	227	374



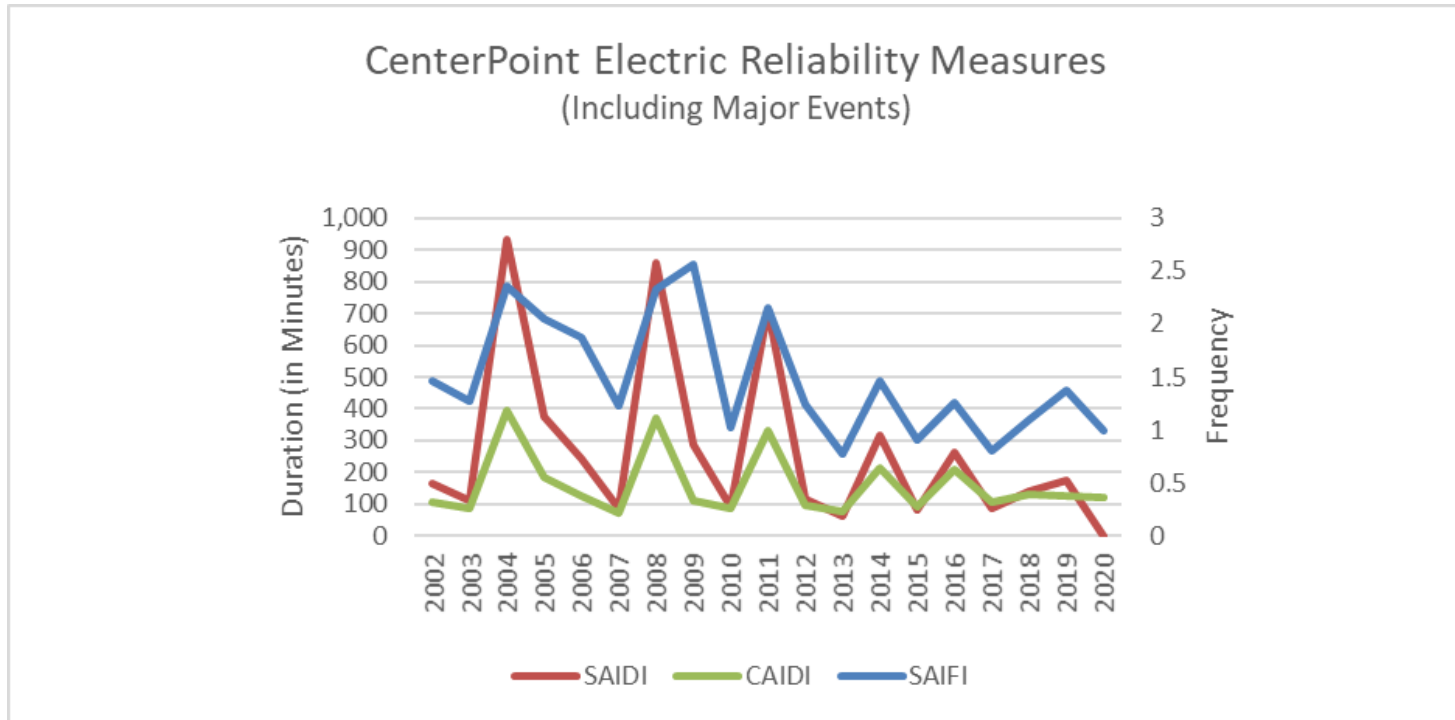
Electric Reliability Including Major Events																			
Duke	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	SAIFI	1.57	1.58	1.66	1.59	1.63	1.41	2.48	1.76	1.58	2.07	1.52	1.38	1.31	1.27	1.34	1.33	1.45	1.38
SAIDI	170	201	255	282	203	178	689	293	195	630	216	257	186	211	290	261	366	221	279
CAIDI	109	128	153	177	125	126	278	166	124	304	143	187	142	166	217	196	253	160	223



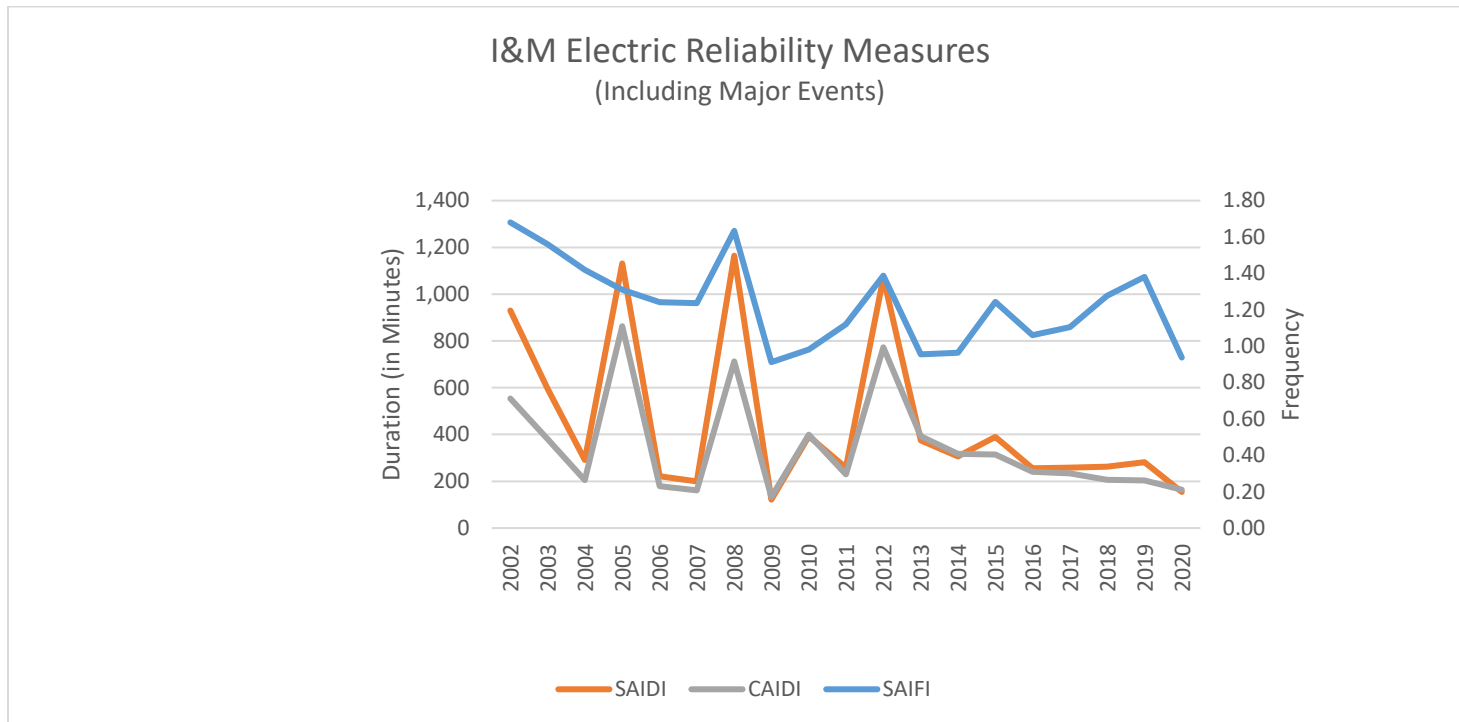
Electric Reliability Including Major Events																			
AES-IN		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SAIFI		0.9	0.81	0.9	1.07	0.76	1.54	1.1	1.04	0.86	1.04	0.71	0.96	0.94	1.17	0.95	1.13	1.22	1.16
SAIDI		98	77	67	105	47	359	158	71	75	125	92	190	219	232	80	149	213	155
CAIDI		108	94	74	98	62	233	145	68	88	120	130	199	233	198	85	131	175	133



Electric Reliability Including Major Events*																			
CenterPoint	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SAIFI	1.46	1.27	2.36	2.05	1.87	1.23	2.33	2.56	1.02	2.16	1.24	0.78	1.47	0.9	1.26	0.8	1.09	1.37	1
SAIDI	164	111	932	376	241	89	859	289	90	711	117	60	314	81	261	86	140	174	121,9
CAIDI	107	87	395	185	128	72	369	113	88	330	95	77	214	91	207	107	129	127	121



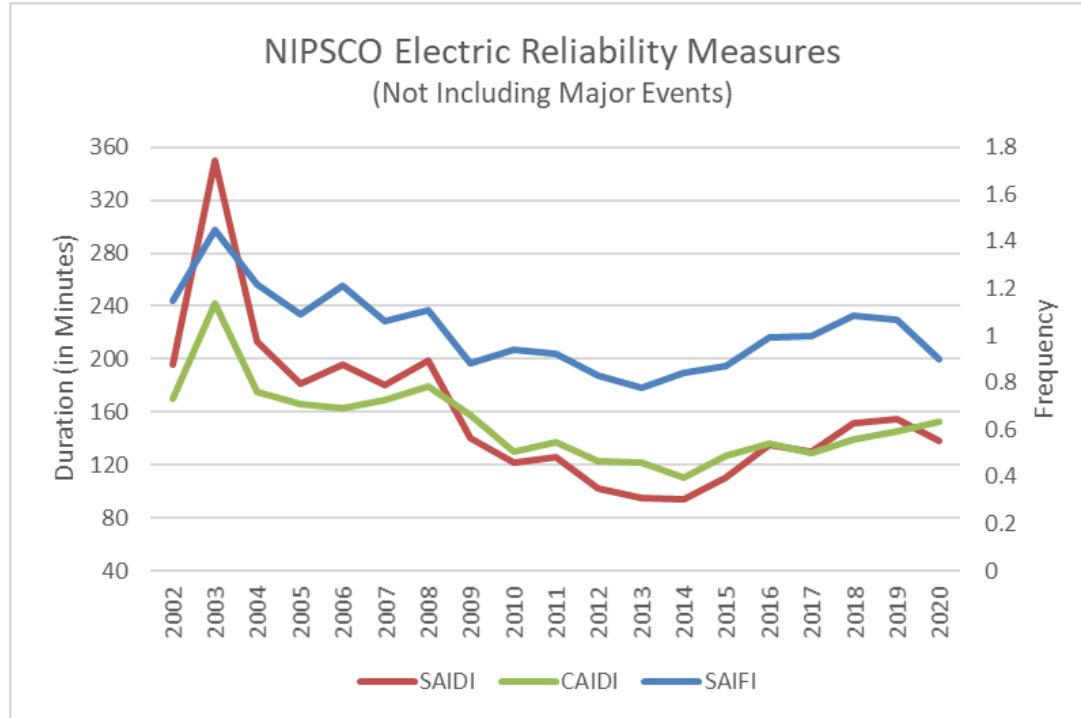
Electric Reliability Including Major Events																			
I&M	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	SAIFI	1.68	1.56	1.42	1.31	1.24	1.24	1.63	0.91	0.98	1.12	1.39	0.96	0.96	1.24	1.06	1.11	1.28	1.38
SAIDI	931	594	291	1,132	222	199	1,164	122	392	258	1,071	375	306	390	255	258	263	282	154.1
CAIDI	554	380	205	863	179	161	713	133	400	230	773	392	318	314	241	233	206	204	164.5



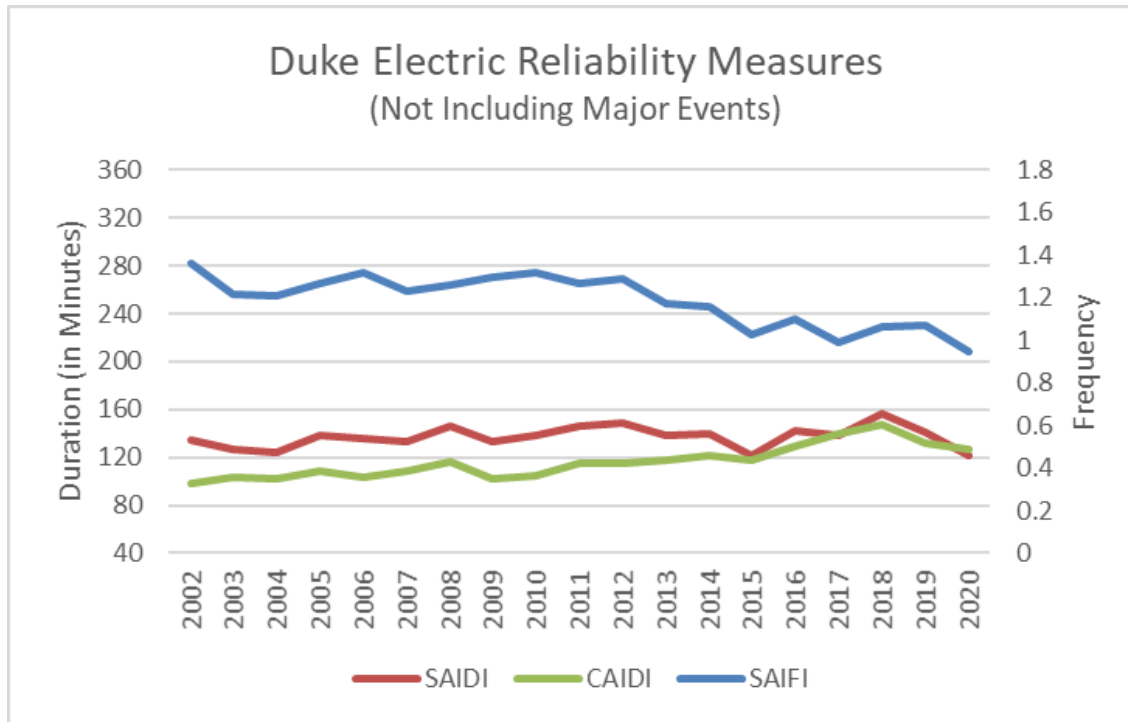
ELECTRIC RELIABILITY NOT INCLUDING MAJOR EVENTS

Electric Reliability Not Including Major Events (Without Major Events)																			
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
NIPSCO	<i>SAIFI</i>	1.45	1.22	1.09	1.21	1.06	1.11	0.88	0.94	0.92	0.83	0.78	0.84	0.87	0.99	1.00	1.09	1.07	1.26
	<i>SAIDI</i>	350.40	213.00	181.00	196.00	180.00	199.00	140.00	122.00	126.00	102.00	95.00	94.00	110.00	135.00	129.94	151.38	155.00	473.00
	<i>CAIDI</i>	241.70	175.00	166.00	163.00	169.00	179.00	158.00	130.00	137.00	123.00	122.00	111.00	127.00	136.00	129.42	139.00	145.00	374.00
Duke	<i>SAIFI</i>	1.22	1.21	1.27	1.32	1.23	1.26	1.30	1.32	1.27	1.29	1.17	1.16	1.03	1.10	0.99	1.06	1.07	0.95
	<i>SAIDI</i>	127.00	124.00	138.00	136.00	133.00	146.00	133.00	138.00	146.00	149.00	138.00	140.00	121.00	142.49	138.30	156.20	140.40	121.00
	<i>CAIDI</i>	103.00	102.00	109.00	103.00	109.00	116.00	102.00	104.00	115.00	115.00	118.00	121.00	117.50	129.60	139.60	148.00	131.60	127.20
IPL / AES	<i>SAIFI</i>	0.79	0.71	0.90	1.07	0.76	1.04	0.94	1.04	0.86	0.82	0.58	0.71	0.66	0.74	0.86	0.95	0.88	0.93
	<i>SAIDI</i>	65.70	53.20	66.50	105.15	46.99	80.84	81.13	71.15	75.08	56.71	48.33	56.71	48.70	61.64	59.64	67.46	75.60	73.00
	<i>CAIDI</i>	83.20	74.50	73.90	98.01	61.70	77.68	86.23	68.13	87.63	69.57	82.78	80.24	73.70	82.85	69.05	71.08	85.52	79.00
CenterPoint	<i>SAIFI</i>	1.27	1.12	1.68	1.51	1.23	1.42	1.20	1.02	1.43	1.07	0.73	0.92	0.85	0.82	0.64	0.80	1.08	0.86
	<i>SAIDI</i>	111.00	106.80	137.00	151.00	89.00	133.00	110.00	89.70	137.00	83.00	47.50	67.20	70.90	61.30	58.80	78.30	100.40	78.00
	<i>CAIDI</i>	87.00	95.40	82.00	100.00	72.00	94.00	92.00	88.30	95.70	77.50	65.10	73.00	82.90	74.40	91.60	97.60	92.80	91.00
I&M	<i>SAIFI</i>	0.95	1.25	1.00	1.12	1.11	1.12	0.83	0.74	0.99	0.91	0.74	0.77	1.05	0.95	0.98	1.10	1.19	1.12
	<i>SAIDI</i>	128.50	194.10	170.70	146.70	139.10	143.70	90.30	111.30	153.70	136.70	113.70	127.50	160.10	152.90	166.30	175.70	189.40	300.30
	<i>CAIDI</i>	135.00	155.60	171.10	130.60	125.60	128.60	108.80	150.90	156.10	151.10	154.00	165.40	152.60	160.80	170.20	159.70	159.80	266.30
Notes																			
SAIFI: System Average Interruption Frequency Index; (# of customers who experience outage) / (total # of customers)																			
SAIDI: System Average Interruption Duration Index; (duration or time of service interruptions) / (total # of customers)																			
CAIDI: Customer Average Interruption Duration Index; (SAIDI) / (SAIFI)																			
*Major events are storms or weather events that are more destructive than normal storm patterns. The same definition of "major event" is not used by all utilities.																			

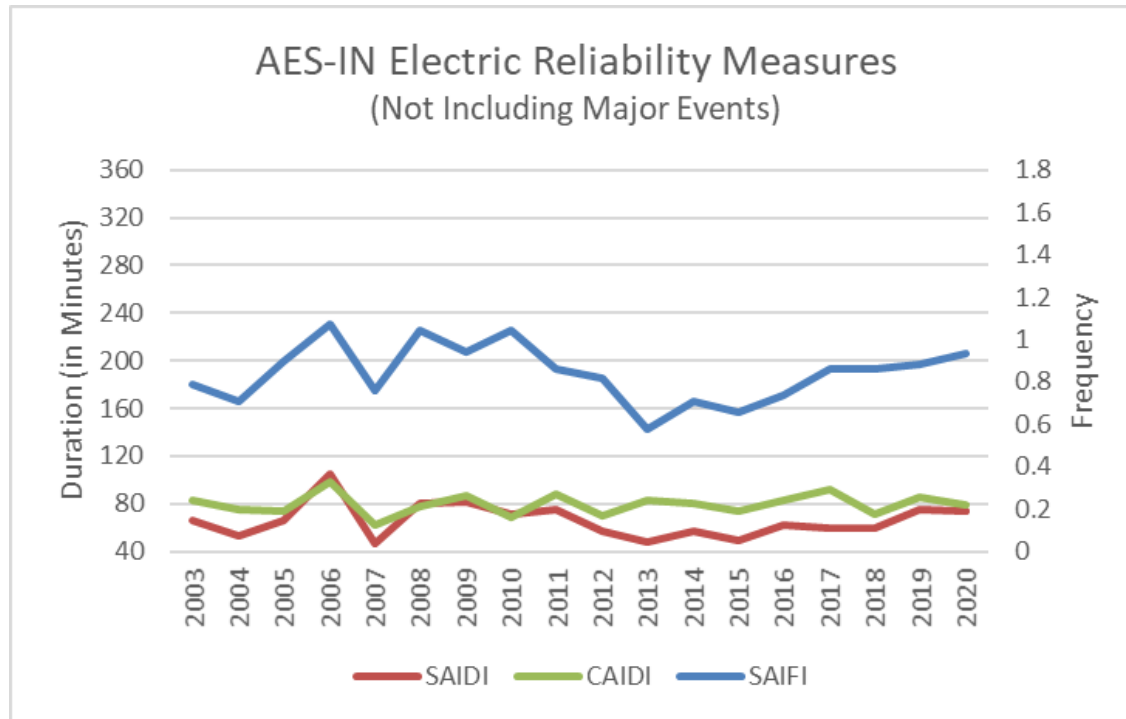
		Electric Reliability Not Including Major Events*																		
NIPSCO		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SAIFI		1.15	1.45	1.22	1.09	1.21	1.06	1.11	0.88	0.94	0.92	0.83	0.78	0.84	0.87	0.99	1	1.087	1.068	0.901
SAIDI		196.2	350.4	213	181	196	180	199	140	122	126	102	95	94	110	135	129.94	151.38	155	138
CAIDI		170.6	241.7	175	166	163	169	179	158	130	137	123	122	111	127	136	129.42	139	145	153



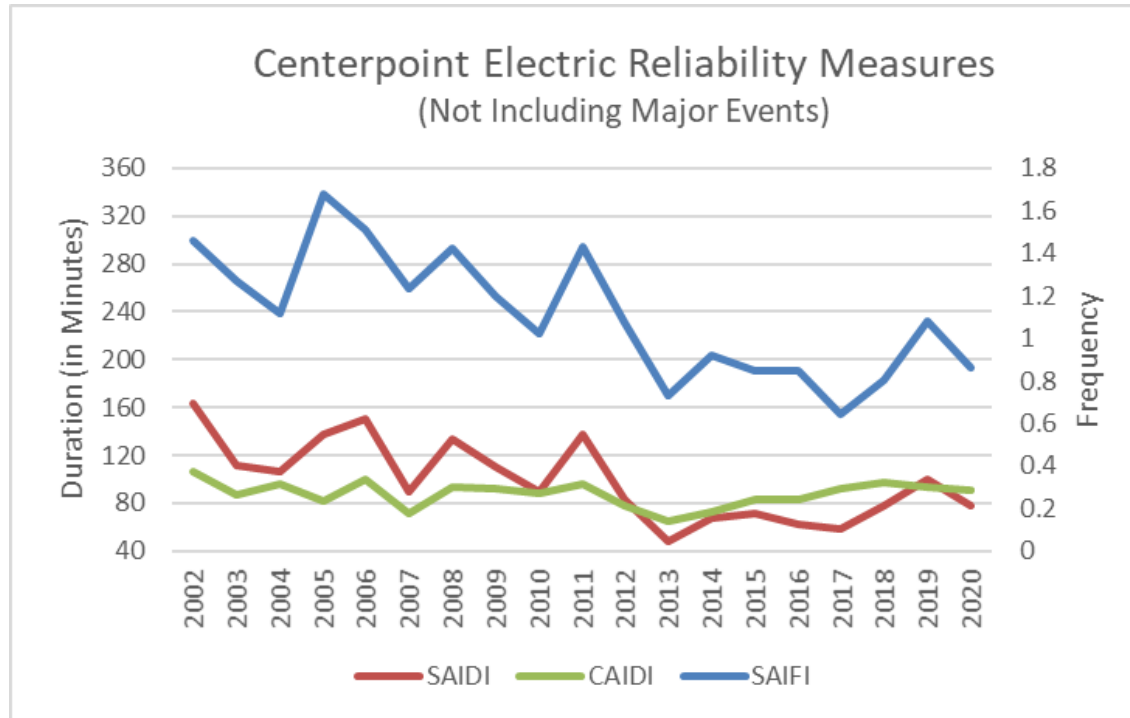
		Electric Reliability Not Including Major Events*																		
Duke		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	SAIFI	1.36	1.22	1.21	1.27	1.32	1.23	1.26	1.3	1.32	1.27	1.29	1.17	1.16	1.03	1.1	0.99	1.06	1.07	0.95
	SAIDI	134	127	124	138	136	133	146	133	138	146	149	138	140	121	142.49	138.3	156.2	140.4	121
	CAIDI	98	103	102	109	103	109	116	102	104	115	115	118	121	117.5	129.6	139.6	148	131.6	127.2



Electric Reliability Not Including Major Events - (Without a Major Event)																			
AES-IN		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SAIFI		0.79	0.71	0.9	1.07	0.76	1.04	0.94	1.04	0.86	0.82	0.58	0.71	0.66	0.74	0.86	0.86	0.884	0.934
SAIDI		66	53	67	105	47	81	81	71	75	57	48	57	49	62	59	60	76	73
CAIDI		83	75	74	98	62	78	86	68	88	70	83	80	74	83	92	71	86	79



Electric Reliability Not Including Major Events*																			
Centerpoint	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SAIFI	1.46	1.27	1.12	1.68	1.51	1.23	1.42	1.2	1.02	1.43	1.07	0.73	0.92	0.85	0.85	0.64	0.8	1.08	0.86
SAIDI	164	111	107	137	151	89	133	110	90	137	83	48	67	71	62	59	78	100	78
CAIDI	107	87	95	82	100	72	94	92	88	96	78	65	73	83	83	92	98	93	91



		Electric Reliability Not Including Major Events*																		
I&M		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SAIFI		1.12	0.95	1.25	1.00	1.12	1.11	1.12	0.83	0.74	0.99	0.91	0.74	0.77	1.05	0.95	0.98	1.10	1.19	0.937
SAIDI		179	129	194	171	147	139	144	90	111	154	137	114	128	160	153	166	176	189	154.1
CAIDI		159	135	156	171	131	126	129	109	151	156	151	154	165	153	161	170	160	160	164.5

