

Indiana Utility Regulatory Commission

Electric Utility Reliability Report: 2002 – 2014

Each investor-owned electric utility in Indiana is required to file a reliability indices report annually with the Indiana Utility Regulatory Commission (IURC) in compliance with 170 IAC 4-1-23(e). This serves as a compilation of the reports filed for 2014 and provides historical data for each year back to 2002.

The utilities provide the following three reliability indices in their reports:

- System Average Interruption Frequency Index (SAIFI): the total number of customer interruptions divided by the total number of customers (average interruptions per customer).
- System Average Interruption Duration Index (SAIDI): the sum of all customer interruption durations (in minutes) divided by the total number of customers (average minutes of interruption per customer).
- Customer Average Interruption Duration Index (CAIDI): SAIDI divided by SAIFI (average minutes per interruption).

Each utility reported its indices with and without major events. Major events are storms or weather events that are more destructive than normal storm patterns. Providing indices that exclude major events normalizes the data by eliminating interruptions over which the utilities have little or no control.

All utilities do not define a major event exactly the same; therefore some utilities will capture more of their service interruptions in the category “not including major events” than other utilities. For that reason direct comparisons of the utilities’ indices should be avoided. Also, the size and geography of service territories and the customer mix can vary greatly among the utilities, further complicating direct comparison of the indices.

The following table summarizes the number of major event days each utility reported having in 2014. In addition to the major events below, NIPSCO stated it experienced an additional 71 weather events it considered severe. It should be noted that one storm system can potentially cause multiple major event days.

Utility Company	Major Event Days
NIPSCO	18
Indianapolis Power & Light	5
Indiana Michigan Power	5
Duke Energy Indiana	5
Vectren	6

The tables and graphs that follow provide the reliability indices for the investor-owned utilities for the years 2002 through 2014.

Electric Reliability Including Major Events*													
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
NIPSCO													
SAIFI	1.41	1.65	1.38	1.24	1.40	2.23	1.8	0.88	1.36	1.38	1.44	1.45	1.53
SAIDI	542.4	498.0	317	258	317	1073	882	140	505	371	428.000	520	603
CAIDI	384.7	301.8	229	208	227	480	490	158	372	269	297.000	359	395
Duke													
SAIFI	1.57	1.58	1.66	1.59	1.63	1.41	2.48	1.76	1.58	2.07	1.520	1.38	1.31
SAIDI	170.0	201.0	255.0	282.0	203.0	178	689	293	195	630	216.000	257	186
CAIDI	109.0	128.0	153.0	177.0	125.0	126	278	166	124	304	143.000	187	142
IPL													
SAIFI	1.17	0.90	0.81	0.90	1.07	0.76	1.54	1.1	1.04	0.86	1.040	0.71	0.96
SAIDI	132.9	98.0	76.7	66.5	105.2	46.99	358.98	158	71	75	124.920	92.3	189.98
CAIDI	113.3	108.4	94.1	73.9	98.0	61.7	232.96	145	68	88	119.660	130.01	198.63
Vectren													
SAIFI	1.46	1.27	2.36	2.05	1.87	1.23	2.33	2.56	1.02	2.16	1.240	0.78	1.47
SAIDI	164.0	111.0	932.4	376.0	241.0	89	859	2,889	90	711	117.300	60.1	314.3
CAIDI	107.0	87.0	394.7	185.0	128.0	72	369	1,126	88	330	94.900	76.6	213.5
I&M													
SAIFI	1.68	1.56	1.42	1.31	1.242	1.237	1.633	0.91	0.98	1.12	1.387	0.955	0.963
SAIDI	930.6	594.2	291.4	1,131.6	222.0	199.4	1164.3	122	392	258	1071.200	374.5	305.9
CAIDI	553.5	380.2	204.7	863.0	178.7	161.2	712.8	133	400	230	772.500	392	317.8

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.

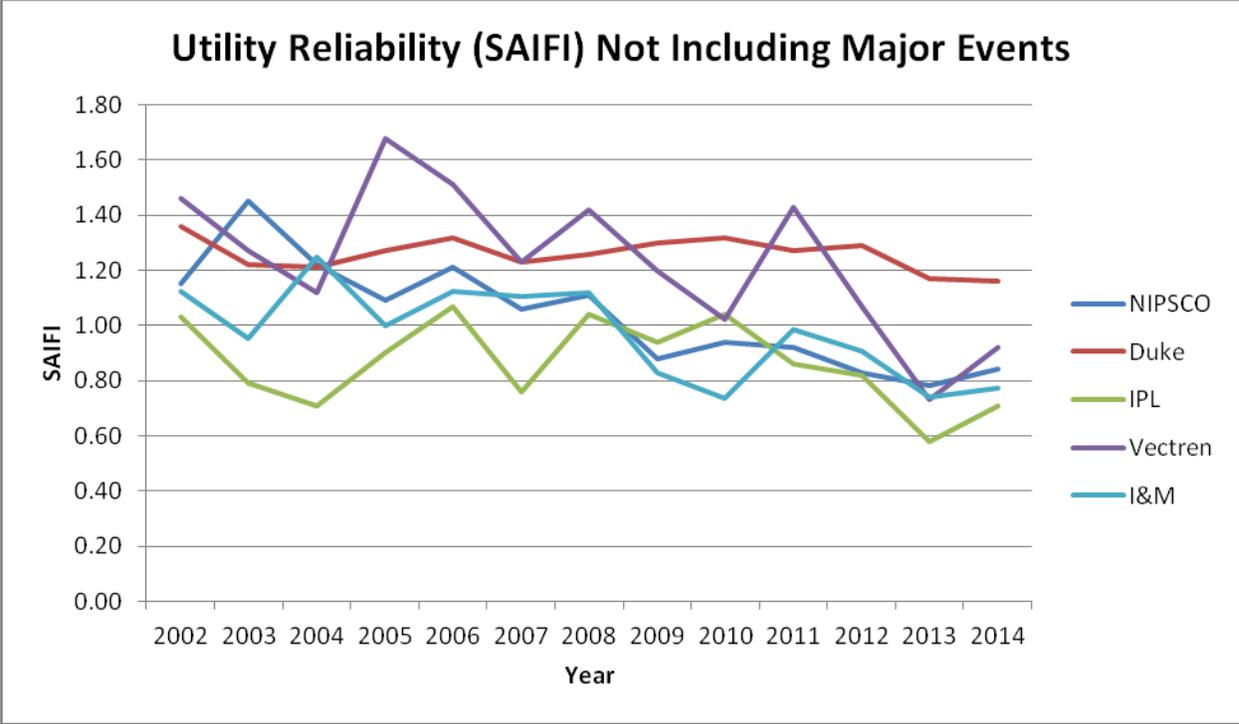
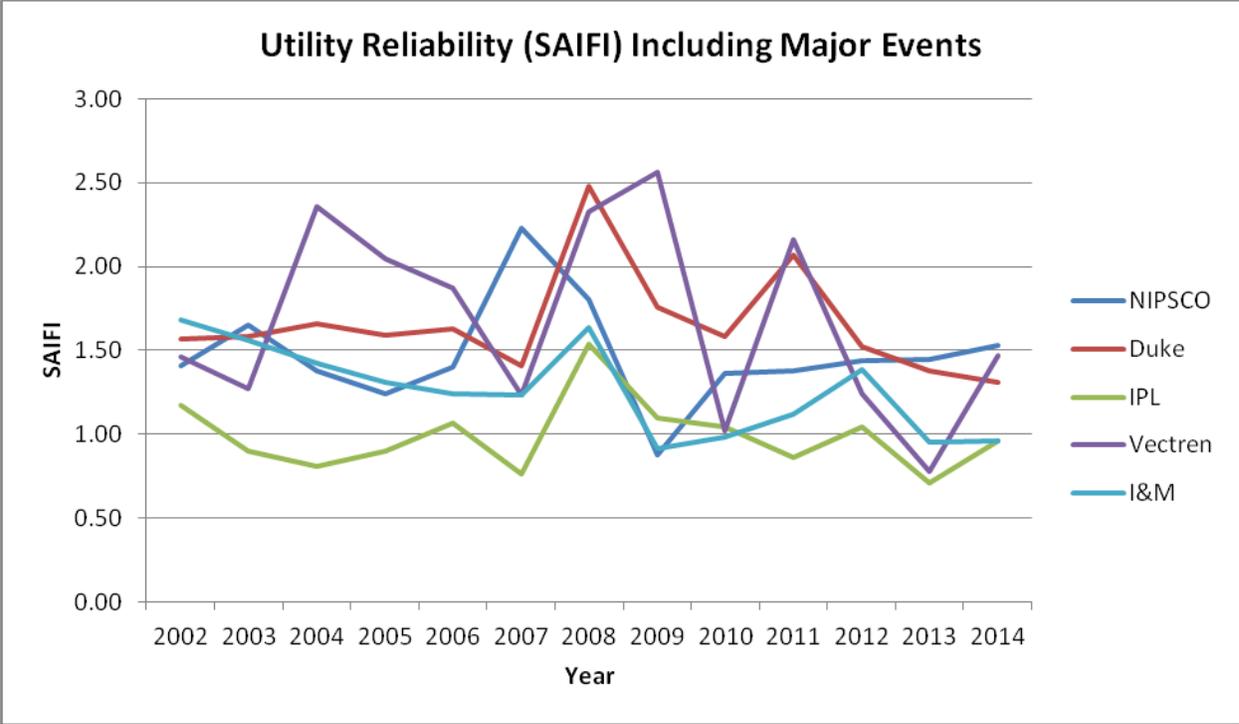
**NIPSCO's 2007 report updated values for 2004-2006 based on accepted industry standard IEEE Std 1366 - however, the above values reflect the original reports.

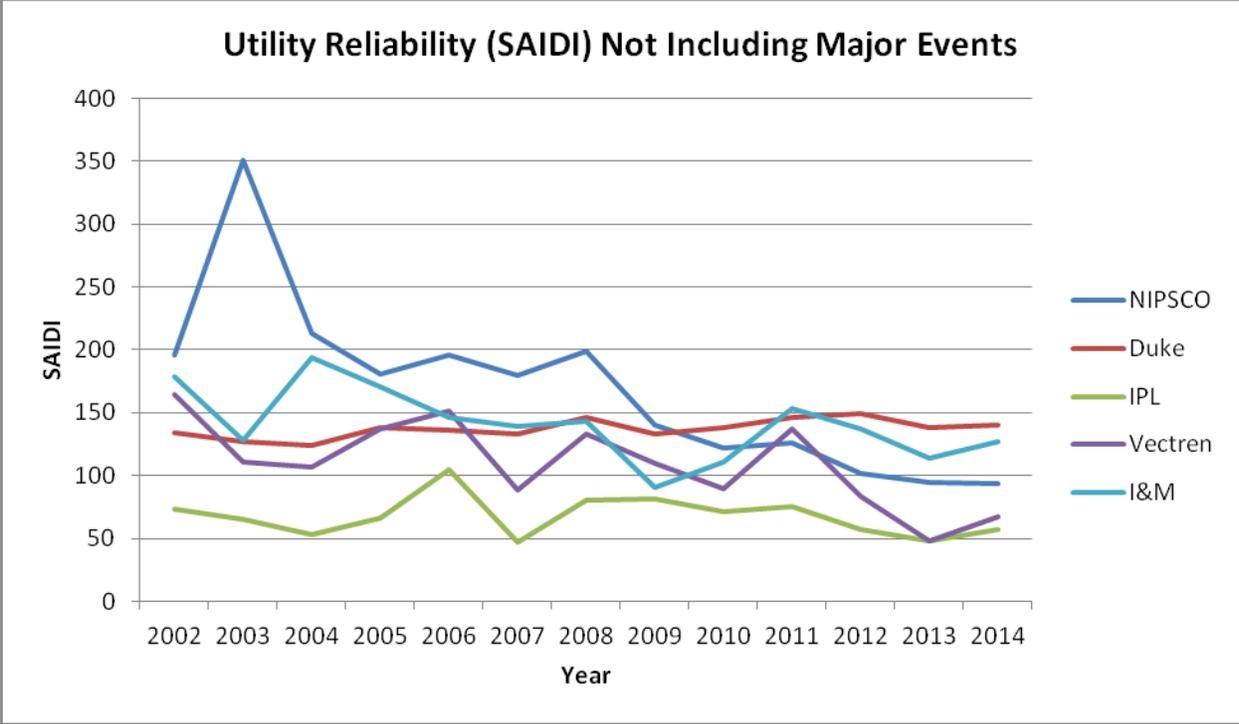
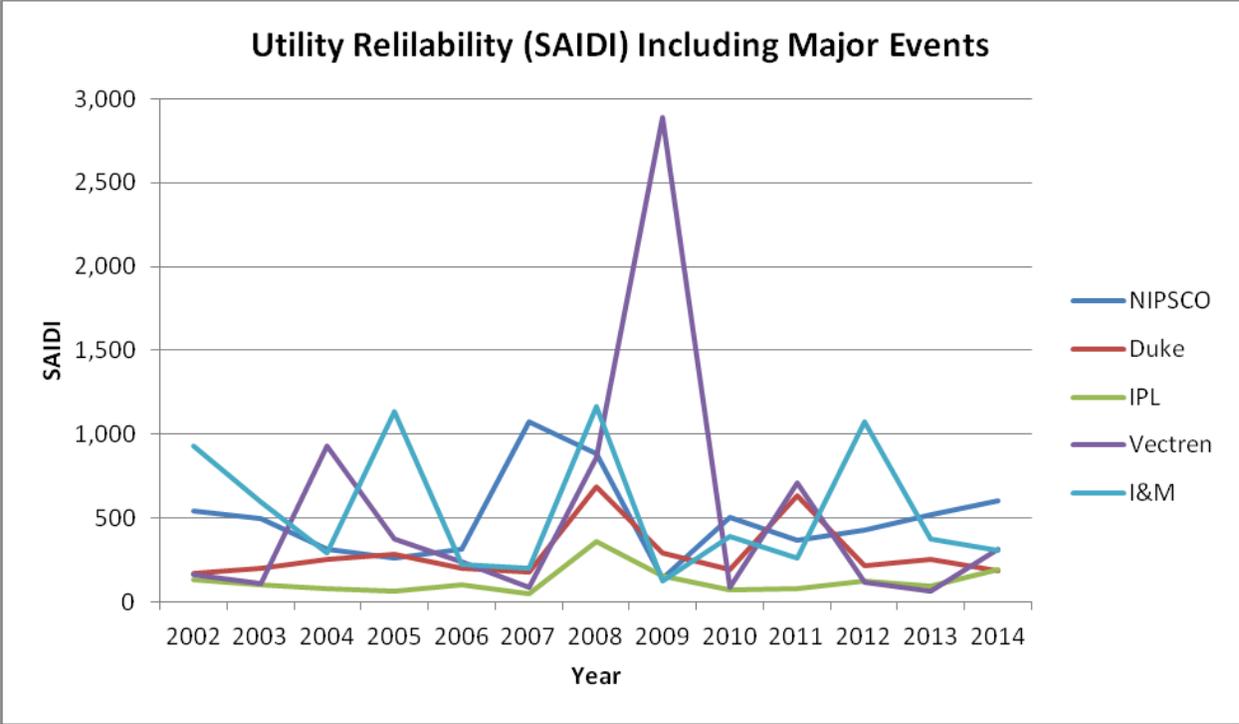
Electric Reliability Not Including Major Events*													
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
NIPSCO													
SAIFI	1.15	1.45	1.22	1.09	1.21	1.06	1.11	0.88	0.94	0.92	0.83	0.78	0.84
SAIDI	196.2	350.4	213	181	196	180	199	140	122	126	102	95	94
CAIDI	170.6	241.7	175	166	163	169	179	158	130	137	123	122	111
Duke													
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
SAIDI	134.0	127.0	124.0	138.0	136.0	133	146	133	138	146	149	138	140
CAIDI	98.0	103.0	102.0	109.0	103.0	109	116	102	104	115	115	118	121
IPL													
SAIFI	1.03	0.79	0.71	0.90	1.07	0.76	1.04	0.94	1.04	0.86	0.82	0.58	0.71
SAIDI	73.8	65.7	53.2	66.5	105.2	46.99	80.84	81	71	75	57	48.33	56.71
CAIDI	72.0	83.2	74.5	73.9	98.0	61.7	77.68	86	68	88	70	82.78	80.24
Vectren													
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
SAIDI	164.0	111.0	106.8	137.0	151.0	89	133	110	90	137	83	47.5	67.2
CAIDI	107.0	87.0	95.4	82.0	100.0	72	94	92	88	96	78	65.1	73
I&M													
SAIFI	1.12	0.95	1.25	1.00	1.123	1.107	1.117	0.83	0.74	0.99	0.91	0.739	0.771
SAIDI	179.1	128.5	194.1	170.7	146.7	139.1	143.7	90	111	154	137	113.7	127.5
CAIDI	159.3	135.0	155.6	171.1	130.6	125.6	128.6	109	151	156	151	154	165.4

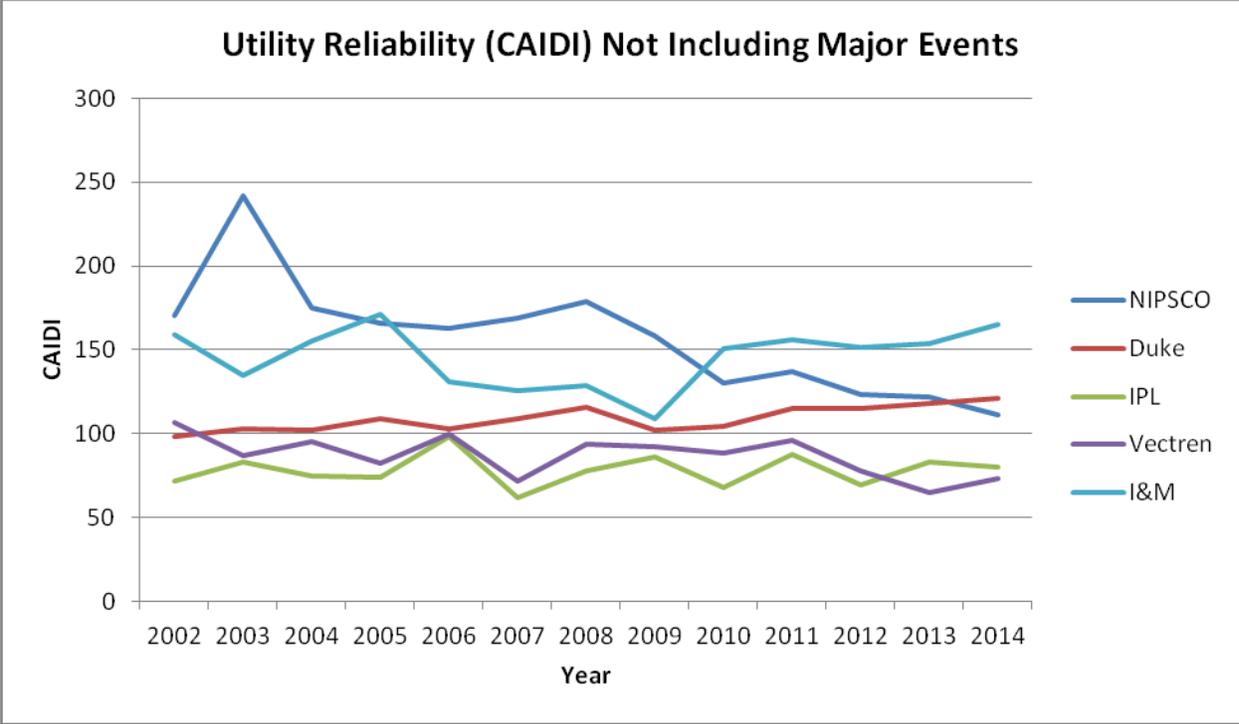
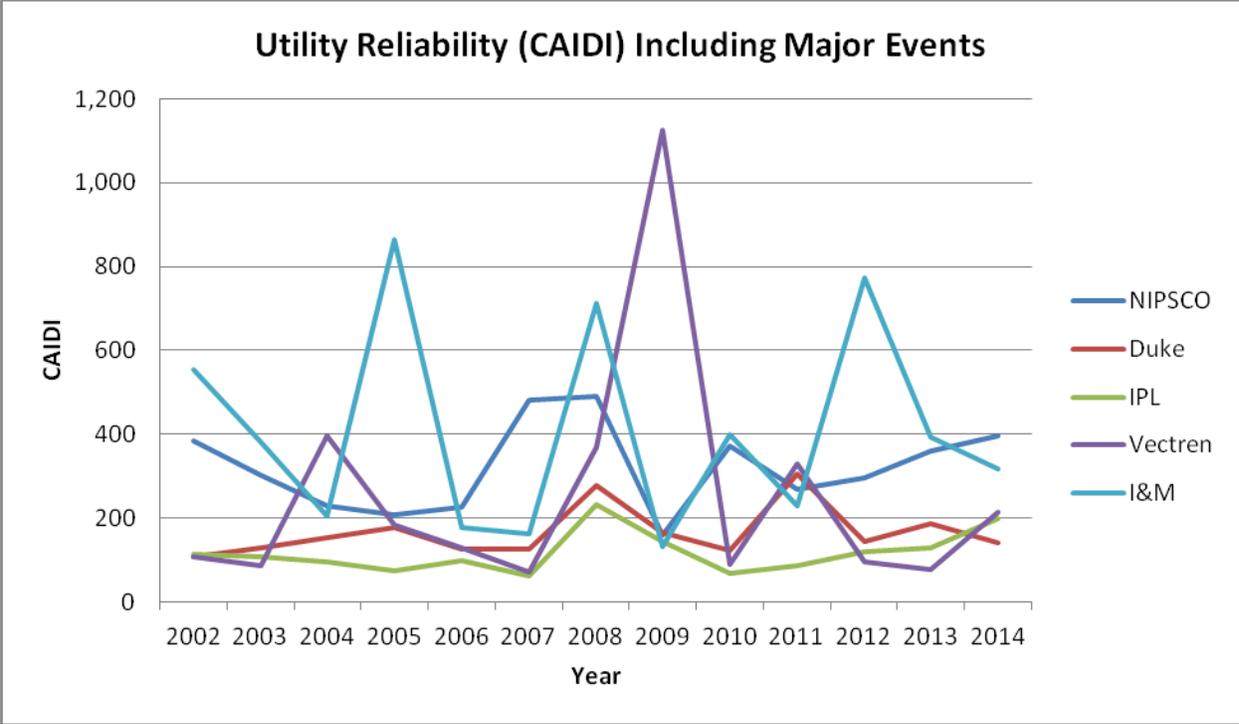
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Comparison of 2014 Indices to 2002-2013 Average Indices (With Major Events)				
	2014	2002-2013 Avg	Variance 2014 - Avg	% Variance 2014 - Avg
NIPSCO*				
SAIFI	1.53	1.47	0.06	4%
SAIDI	603	488	115	24%
CAIDI	395.00	314.63	80	26%
Duke				
SAIFI	1.31	1.69	-0.38	-22%
SAIDI	186	297	-111	-37%
CAIDI	142.00	168.33	-26	-16%
IPL				
SAIFI	0.96	0.99	-0.03	-3%
SAIDI	190	117	73	62%
CAIDI	198.63	111.04	88	79%
Vectren				
SAIFI	1.47	1.69	-0.22	-13%
SAIDI	314	553	-239	-43%
CAIDI	213.50	254.87	-41	-16%
I&M				
SAIFI	0.96	1.29	-0.32	-25%
SAIDI	306	563	-257	-46%
CAIDI	317.80	415.16	-97	-23%
*NIPSCO's 2007 report updated values for 2004-2006 based on accepted industry standard IEEE Std 1366. The averages above reflect those revisions.				

Comparison of 2014 Indices to 2002-2013 Average Indices (Without Major Events)				
	2014	2002-2013 Avg	Variance 2014 - Avg	% Variance 2014 - Avg
NIPSCO*				
SAIFI	0.78	1.05	-0.21	-20%
SAIDI	95	175	-81	-46%
CAIDI	122	161	-50	-31%
Duke				
SAIFI	1.17	1.27	-0.11	-9%
SAIDI	138	137	3	2%
CAIDI	118	108	13	12%
IPL				
SAIFI	0.58	0.88	-0.17	-19%
SAIDI	48	69	-12	-17%
CAIDI	83	78	2	3%
Vectren				
SAIFI	0.73	1.26	-0.34	-27%
SAIDI	48	113	-46	-41%
CAIDI	65	88	-15	-17%
I&M				
SAIFI	0.74	0.99	-0.22	-22%
SAIDI	114	142	-15	-10%
CAIDI	154	144	22	15%
*NIPSCO's 2007 report updated values for 2004-2006 based on accepted industry standard IEEE Std 1366. The averages above reflect those revisions.				