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COMPANY NAME: Idaho Power Company

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**Idaho Power Company  
2013 Electric Service  
Reliability Annual Report**

**May 2014**

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## EXECUTIVE SUMMARY

This document is Idaho Power's 2013 Electric Service Reliability Annual Report. The report discusses the performance of Idaho Power's electric service in the state of Oregon.

At year end 2013, Idaho Power served 18,349 customers from 63 distribution circuits and 39 substations in the far central-eastern portion of Oregon. The composite performance of the 63 circuits in 2013 included the following:

- 875 sustained (greater than five minutes) interruptions
- 647 momentary (less than or equal to five minutes) interruptions
- 128,314.5 customer hours out
- System Average Interruption Duration Index (SAIDI) of 6.99
- System Average Interruption Frequency Index (SAIFI) of 2.41
- Momentary Average Interruption Event Frequency Index (MAIFI<sub>E</sub>) of 3.80

All the indices, graphs, and figures in this report are calculated by including and excluding identified major event day (MED) occurrences.

The daily threshold MED (TMED)—also referred to as Day SAIDI for 2013 was calculated to be 11.25 minutes (0.19 hours). The identification of a MED also includes a calculation of the Customer Average Interruption Duration Index (CAIDI) of 300 minutes (5 hours) as defined by the Public Utility Commission of Oregon (OPUC) Rule 860-023-0161. Following this criteria, Idaho Power experienced five MEDs, which are summarized in Table 10.

For 2014, Idaho Power's TMED (DaySAIDI) is 13.86 minutes, based on the IEEE 1366 standard methodology. The 300 minutes calculation for CAIDI remains the same.

SAIFI (including MED) was at 2.41, which was an increase of 0.98 over 2012. Excluding MED, SAIFI was 2.01, representing an increase of 0.81 over 2012.

SAIDI (including MED) was at 6.99, an increase from 2012 of 3.42. Excluding MED, SAIDI was at 4.62, representing an increase of 2.35 over 2012.

MAIFI<sub>E</sub> (including MED) was at 3.8, which was a decrease over 2012 of 0.9. Excluding MED, MAIFI<sub>E</sub> was 3.54, representing a decrease of 1.00 over 2012.

## DEFINITIONS

**CAIDI**—Customer Average Interruption Duration Index

**Institute of Electrical Electronic Engineers Standard 1366 (IEEE1366)**—The *IEEE Guide for Electric Power Distribution Reliability Indices* (2003 edition), approved on December 10, 2003, by the IEEE Standards Association (IEEE-SA) Standards Board and on April 26, 2004, by the American National Standards Institute (ANSI).

**MAIFI<sub>E</sub>**—Momentary Average Interruption Event Frequency Index

**Major Event**—An event that exceeds the reasonable design and or operational limits of the electric power system. A major event includes at least one major event day (MED).

**Major Event Day (MED)**—A day when the daily System Average Interruption Duration Index (SAIDI) exceeds a threshold value (TMED). For the purposes of calculating daily system SAIDI, any interruption that spans multiple calendar days is accrued to the day the interruption began. Statistically, days having a daily system SAIDI greater than TMED are days the energy delivery system experiences stresses beyond normally expected, such as severe weather. Activities occurring on MEDs should be analyzed and reported separately.

**Operating Area(s)**—Idaho Power's circuits in 1) the Jordan Valley region of the reporting area served by Idaho Power's Canyon Operations Center and 2) in the reporting area serviced by Idaho Power's Western Operations Center.

**Reporting Area**—Idaho Power's entire service area in Oregon.

**SAIDI**—System Average Interruption Duration Index

**SAIFI**—System Average Interruption Frequency Index

**TMED**—A major event day (MED) identification threshold value.

## SYSTEM PERFORMANCE

The attached system charts and tables show Idaho Power's Oregon system performance (63 Oregon circuits) over five years for the reliability indices of SAIDI, SAIFI, and MAIFI<sub>E</sub>, including and excluding MED calculations in years 2012 and 2013.

Figures 1 through 3 provide a graphic representation of the overall system reliability for each index. These figures also show the increase in SAIDI and SAIFI and the decrease in MAIFI<sub>E</sub> between the 2012 and 2013 reporting years. This represents the affects the five MEDs had on Idaho Power's system. Prior to 2012, MEDs were not indentified and recorded, so the indices excluding MED are represented as zero. Tables 1 through 3 display the calculated SAIDI, SAIFI and MAIFI<sub>E</sub> indices for each circuit. Although the last five reporting years are displayed and 2012 data included calculations based on MED information, only the current reporting year (2013) has a calculation showing for each of the indices with MED excluded.

Table 4 lists each of the 63 circuits' data for the three reliability indices, including and excluding MEDs. Each column is sorted in descending order based on the calculation including MEDs. This data reflects the top five active circuits were affected by one or more of the MEDs experienced by Idaho Power in 2013.

Figures 4 through 6 provide a graphic representation of the circuits, in descending order based on Table 4, for the three reliability indices. Also attached are charts for each Oregon circuit by reliability index, graphed to represent the indices including and excluding MEDs.

Tables 5 and 6 show the number of sustained outages experienced by cause code as defined in OPUC Rule 860-023-0161. Table 5 represents the outage causes in alphabetical order for the five consecutive reporting years, and Table 6 represents the current reporting year sorted in descending order based on occurrences. In both tables, the activity attributed to customer equipment and MEDs are shown; however, these causes are excluded from the overall calculation and totals as allowed for in the code. These tables are followed by graphs that show outage activity by cause over the five consecutive reporting years.

The top five causes of Idaho Power's sustained interruptions in 2013 were due to the following (in descending order):

- Equipment Failure
- Scheduled Outages
- Adverse Environment
- Lightning
- Unknown

Figure 7 is a bar chart representing the 12 types of sustained outage causes based on the percent of the total occurrences. This is based on the data in Table 5 for current year activity only.

Table 7 ranks the 2013 momentary event causes by number of interruptions. Except for those few events that were processed through Idaho Power's Outage Management System (OMS), the bulk of these events are not assigned an outage cause code.

Table 8 lists all of Idaho Power's substations and feeders located in Oregon along with the feeder voltage and the number of customers served.

Table 9 provides five years of line/trench miles and customer count data. A slight increase in underground service has been realized in the last five years.

Table 10 provides a summary of the five MEDs Idaho Power experienced in 2013 (full reports for each day are on file with the OPUC). In all five situations, the company experienced equipment failures causing a loss of supply to the distribution system.

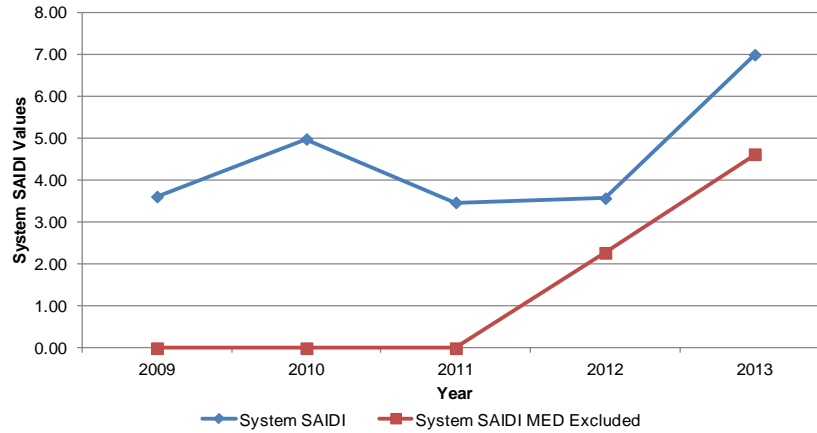
The increase in SAIFI and SAIDI experienced in 2013 is largely attributed to the increase in MEDs. Idaho Power experienced equipment failures that caused a loss of supply to the distribution system. Three of the five MEDs experienced were located on lines that are not easily accessed, causing a longer duration than would be Idaho Power's normal response time.

Idaho Power continues to implement programs and projects to help improve customer service and electric service reliability. Some of the programs include the annual Oregon safety inspection/reliability patrols, line clearing program, and annual maintenance projects.



## SYSTEM SAIDI, SAIFI, AND MAIFI<sub>E</sub> DATA

### System SAIDI



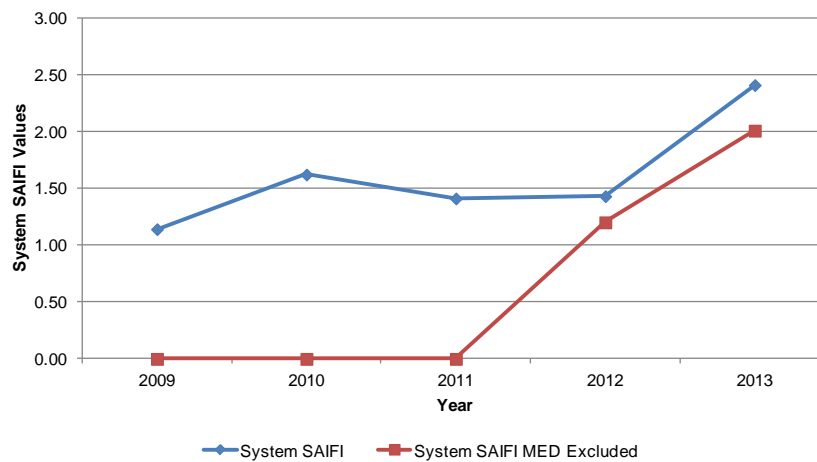
#### System SAIDI Values

2009	2010	2011	2012	2013	2013 MED excluded
3.61	4.98	3.47	3.57	6.99	4.62

**Figure 1**

Five years of system reliability data with and without MED—system SAIDI values

### System SAIFI



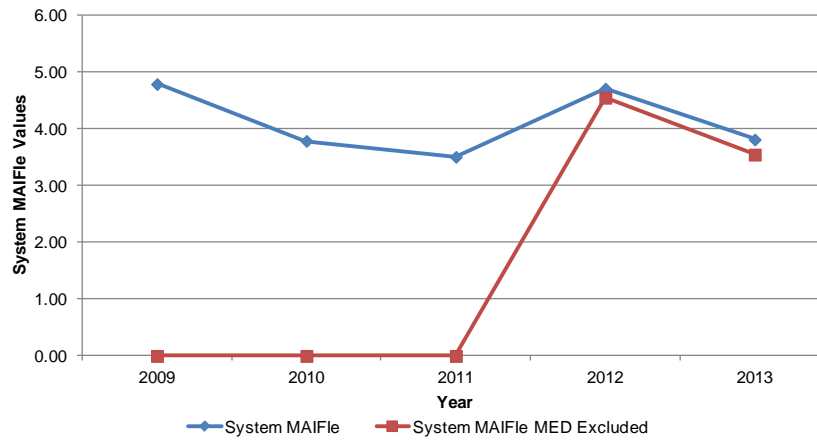
#### System SAIFI Values

2009	2010	2011	2012	2013	2013 MED excluded
1.14	1.62	1.41	1.43	2.41	2.01

**Figure 2**

Five years of system reliability data with and without MED—system SAIFI values

## System MAIFI<sub>E</sub>



**System MAIFI<sub>E</sub> Values**

2009	2010	2011	2012	2013	2013 MED excluded
4.78	3.78	3.50	4.70	3.80	3.54

**Figure 3**

Five years of system reliability data with and without MED—system MAIFI<sub>E</sub> values

**Table 1**  
Five years of circuit SAIDI data with and without MED

Circuit	2009	2010	2011	2012	2013	2013 SAIDI
						MED Excluded
ADRN11	2.31	0.15	1.26	3.52	3.52	3.52
ADRN12	3.45	0.50	2.63	5.69	7.31	6.23
CARO11	0.73	5.48	1.26	0.39	1.54	1.54
CARO12	0.13	0.94	3.35	3.27	1.48	1.37
CARO13	0.08	1.75	0.91	1.40	0.85	0.85
CWVY11	0.33	2.98	2.86	1.88	17.05	8.50
CWVY12	2.61	50.35	7.80	11.19	22.04	13.49
DRKE11	9.42	11.67	7.41	1.95	6.25	6.25
DUKE11	2.96	0.00	9.94	9.08	9.82	5.01
DWSY11	5.19	2.37	9.50	1.63	19.03	18.92
ESTN11	1.57	9.72	0.00	6.53	4.99	4.99
HCSU11	0.00	0.00	0.00	1.17	0.00	0.00
HFVY11	4.16	21.65	9.59	10.66	41.28	18.08
HFVY12	7.10	0.18	13.12	9.72	40.71	15.18
HGTN11	2.30	15.86	2.15	7.67	1.33	1.26
HGTN12	0.03	3.86	0.13	1.82	0.03	0.03
HMDL12	10.87	2.48	0.79	3.38	9.62	9.62
HOLY11	3.65	4.48	0.84	1.56	4.02	4.02
HOLY12	1.63	2.62	0.89	1.23	3.25	3.25
HOLY13	2.01	2.24	0.50	4.56	1.64	1.64
HOPE11	3.09	5.67	3.25	1.62	8.34	8.34
HRPR11	15.35	26.48	8.45	1.41	3.53	3.53
HRPR12	13.83	11.13	7.12	5.81	11.67	11.67
JMSN11	4.59	8.24	4.78	1.79	21.53	15.15
JMSN12	1.01	4.90	0.44	13.04	17.00	10.84
JNTA11	5.91	7.81	7.19	1.57	13.45	13.45
JNTA12	1.76	9.38	5.23	5.44	13.97	13.97
JNVY11	19.28	36.95	36.21	31.27	13.73	8.52
JNVY12	20.93	44.29	38.47	31.19	15.21	10.18
JNVY31	31.32	38.77	42.42	34.08	19.33	9.77
LIME11	7.05	15.90	2.41	3.18	0.38	0.38
LIME12	0.03	25.53	8.11	0.00	0.00	0.00
MRBT41	1.86	1.09	56.83	0.65	0.34	0.34
MRBT42	0.28	0.15	0.10	5.44	0.00	0.00
NYSA11	2.71	0.46	0.39	0.22	2.82	2.82

**Table 1 (continued)**

<b>Circuit</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2013 SAIDI</b>
						<b>MED Excluded</b>
NYSA12	1.16	1.49	2.65	2.48	8.13	8.13
NYSA13	1.85	0.22	1.08	3.94	1.41	1.41
NYSA14	0.70	0.05	0.48	0.94	3.77	3.77
OBPR11	0.00	0.00	0.00	0.00	0.00	0.00
OBPR12	0.00	0.00	0.00	0.00	0.00	0.00
OIDA11	0.06	0.41	0.72	1.67	1.35	1.35
OIDA12	1.55	4.90	4.92	0.00	3.07	3.07
ONTO14	0.50	1.23	1.37	0.18	8.26	8.26
ONTO18	0.03	0.21	0.27	1.68	0.19	0.19
ONTO19	0.11	1.67	0.33	0.64	0.42	0.42
ONTO20	1.46	0.33	1.66	0.31	1.63	1.63
ONTO23	0.83	0.58	0.29	2.40	0.68	0.68
ONTO24	1.03	2.18	0.14	0.25	1.25	1.23
ONTO25	0.12	0.14	0.32	1.35	0.15	0.15
OYDM11	0.00	0.67	0.00	0.00	0.00	0.00
PNCK11	1.29	17.36	14.37	10.47	9.06	4.25
PNCK12	0.00	0.00	14.20	2.52	4.97	2.40
PRMA12	0.00	0.83	4.42	14.92	7.59	7.59
PRMA42	6.24	6.64	0.27	0.34	8.16	8.14
RKVL11	21.75	54.96	29.68	21.49	15.12	13.04
UNTY11	0.65	0.47	1.89	1.76	28.17	21.78
UNTY12	0.87	0.31	1.66	3.82	21.64	15.25
VALE11	0.29	0.75	1.08	0.99	3.23	3.23
VALE13	34.59	19.98	2.14	9.85	5.21	5.21
VALE14	0.92	2.67	5.43	0.62	0.94	0.94
VALE15	0.53	0.54	0.63	3.01	0.33	0.33
WESR13	7.79	1.52	0.35	0.40	3.57	3.57
WESR14	0.91	0.52	0.42	2.60	0.57	0.57

**Table 2**  
Five years of circuit SAIFI data with and without MED

Circuit	2009	2010	2011	2012	2013	2013 SAIFI
						MED Excluded
ADRN11	1.73	0.11	3.37	3.34	2.29	2.29
ADRN12	0.47	4.47	1.38	3.02	4.10	3.42
CARO11	0.24	1.07	4.27	0.29	0.58	0.58
CARO12	0.05	1.07	1.16	0.82	0.77	0.74
CARO13	0.13	0.27	1.20	0.49	1.05	1.05
CWVY11	0.73	3.17	0.47	1.13	4.07	3.07
CWVY12	5.30	4.35	2.37	2.68	4.40	3.40
DRKE11	2.31	0.00	3.48	1.07	2.34	2.34
DUKE11	3.25	1.29	3.37	2.59	8.00	3.00
DWSY11	1.00	7.00	0.00	1.23	5.76	5.72
ESTN11	0.00	0.00	0.00	4.00	5.33	5.33
HCSU11	1.50	5.14	3.51	1.00	0.00	0.00
HFVY11	2.46	0.11	4.33	2.90	11.46	7.46
HFVY12	1.02	3.29	1.69	1.71	10.44	7.20
HGTN11	0.01	1.14	0.99	2.84	0.30	0.28
HGTN12	7.60	2.34	0.55	1.04	0.02	0.02
HMDL12	3.33	3.14	1.29	1.50	2.27	2.27
HOLY11	1.17	3.27	1.28	0.43	1.28	1.28
HOLY12	1.31	2.42	1.06	0.38	2.08	2.08
HOLY13	3.20	2.24	1.87	1.46	2.05	2.05
HOPE11	3.21	8.06	3.87	0.46	3.40	3.40
HRPR11	3.52	4.37	3.25	0.29	1.77	1.77
HRPR12	2.26	3.77	4.06	1.23	3.00	3.00
JMSN11	0.52	1.48	0.24	1.21	6.92	5.92
JMSN12	2.27	3.42	3.38	2.83	5.08	4.11
JNTA11	1.12	4.30	2.06	1.37	5.05	5.05
JNTA12	6.26	8.19	7.00	1.04	5.00	5.00
JNVY11	6.12	7.56	7.43	6.18	4.14	3.14
JNVY12	8.59	8.26	7.62	6.12	4.89	3.93
JNVY31	2.52	1.94	1.32	8.36	4.51	3.52
LIME11	0.04	5.04	3.55	1.94	0.29	0.29
LIME12	0.39	1.22	1.83	0.00	0.00	0.00
MRBT41	0.20	0.10	0.10	1.15	0.11	0.11
MRBT42	1.86	0.77	0.14	1.10	0.00	0.00
NYSA11	1.20	0.95	2.01	0.13	1.12	1.12

**Table 2 (continued)**

<b>Circuit</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2013 SAIFI</b>
						<b>MED Excluded</b>
NYSA12	1.95	0.16	0.40	2.49	3.27	3.27
NYSA13	1.17	0.03	0.30	1.51	1.36	1.36
NYSA14	0.00	0.00	0.00	0.60	2.02	2.02
OBPR11	0.00	0.00	0.00	0.00	0.00	0.00
OBPR12	0.03	0.66	1.14	0.00	0.00	0.00
OIDA11	1.00	4.00	3.00	1.09	2.10	2.10
OIDA12	1.00	1.00	3.10	0.00	3.00	3.00
ONTO14	0.04	0.10	0.20	0.14	0.97	0.97
ONTO18	0.05	0.53	0.16	1.02	0.07	0.07
ONTO19	0.12	0.21	0.46	1.10	0.14	0.14
ONTO20	1.98	1.02	0.22	0.18	1.06	1.06
ONTO23	0.50	1.90	0.07	2.00	1.04	1.04
ONTO24	0.04	0.09	0.19	0.16	0.61	0.59
ONTO25	0.00	0.27	0.00	1.07	0.09	0.09
OYDM11	0.61	3.95	4.31	0.00	0.00	0.00
PNCK11	0.00	0.00	5.00	2.27	7.07	2.10
PNCK12	0.00	0.50	3.00	1.00	4.00	2.00
PRMA12	3.94	3.16	0.18	3.00	5.50	5.50
PRMA42	5.96	6.28	6.11	0.22	3.30	3.28
RKVL11	0.19	0.16	0.44	5.22	4.81	3.89
UNTY11	0.22	0.82	0.55	1.08	6.99	5.99
UNTY12	0.24	0.31	0.66	1.68	5.32	4.32
VALE11	0.49	3.58	0.81	1.07	2.52	2.52
VALE13	0.49	1.55	3.08	4.37	1.34	1.34
VALE14	0.24	0.23	0.56	0.59	0.68	0.68
VALE15	2.25	0.47	0.02	1.76	0.17	0.17
WESR13	0.22	0.35	0.24	0.30	0.23	0.23
WESR14	0.00	0.00	0.00	1.21	0.38	0.38

**Table 3**  
Five years of circuit MAIFI<sub>E</sub> data with and without MED

Circuit	2009	2010	2011	2012	2013	2013 MAIFI <sub>E</sub>
						MED Excluded
ADRN11	3.04	2.81	3.52	2.73	11.73	11.73
ADRN12	2.00	4.27	3.44	6.44	28.94	28.00
CARO11	4.00	3.00	1.00	7.69	3.04	3.04
CARO12	10.00	7.00	0.00	3.90	4.77	3.77
CARO13	9.98	11.62	5.71	3.00	4.00	3.00
CWVY11	19.13	6.04	1.09	6.00	10.00	10.00
CWVY12	6.00	2.00	7.00	6.13	8.31	8.31
DRKE11	5.87	19.53	18.26	11.59	3.00	2.00
DUKE11	0.00	0.00	0.00	0.00	5.00	4.00
DWSY11	0.00	0.00	0.00	12.00	22.00	22.00
ESTN11	9.50	15.60	12.75	0.00	0.00	0.00
HCSU11	8.79	9.20	14.32	0.00	0.00	0.00
HFVY11	4.10	1.20	3.00	14.15	14.00	13.00
HFVY12	2.00	0.00	2.00	3.81	13.00	8.00
HGTN11	40.98	20.03	4.52	5.00	5.00	3.00
HGTN12	3.00	1.00	0.00	0.00	5.00	3.00
HMDL12	2.00	1.00	2.00	3.50	5.00	5.00
HOLY11	5.28	1.49	1.29	2.00	4.00	4.00
HOLY12	6.00	22.17	3.22	1.00	3.00	3.00
HOLY13	7.00	17.00	0.00	3.34	3.00	3.00
HOPE11	7.65	23.07	8.27	1.44	0.00	0.00
HRPR11	14.00	13.00	0.00	0.00	0.00	0.00
HRPR12	9.93	6.00	6.38	4.99	15.38	15.38
JMSN11	4.00	19.00	17.00	6.00	8.00	8.00
JMSN12	4.00	20.00	0.00	6.18	8.00	8.00
JNTA11	12.45	6.36	16.85	12.00	0.00	0.00
JNTA12	22.00	14.00	16.00	0.00	21.98	21.98
JNVY11	24.03	19.54	21.16	6.31	8.00	8.00
JNVY12	8.00	4.77	1.25	8.00	9.00	9.00
JNVY31	2.00	2.35	0.00	9.84	11.35	11.35
LIME11	11.00	5.00	0.00	1.70	4.98	3.98
LIME12	3.00	0.00	4.00	0.00	0.00	0.00
MRBT41	0.00	0.60	0.68	0.00	0.00	0.00
MRBT42	4.62	1.08	4.07	2.00	0.00	0.00
NYSA11	0.07	0.00	0.00	0.00	8.00	8.00

**Table 3 (continued)**

Circuit	2009	2010	2011	2012	2013	2013 MAIFI <sub>E</sub>
						MED Excluded
NYSA12	0.39	1.00	0.00	7.86	7.98	7.98
NYSA13	0.00	0.00	0.00	0.00	0.00	0.00
NYSA14	0.00	0.00	0.00	1.00	7.00	7.00
OBPR11	0.00	1.30	0.14	0.00	0.00	0.00
OBPR12	0.00	1.00	0.00	0.00	0.00	0.00
OIDA11	2.00	1.00	0.00	1.07	1.29	1.29
OIDA12	4.00	1.00	0.00	0.00	0.00	0.00
ONTO14	2.00	6.00	1.11	0.00	0.00	0.00
ONTO18	5.17	1.00	0.00	2.00	0.00	0.00
ONTO19	0.00	1.00	4.00	4.87	1.00	1.00
ONTO20	2.00	14.00	1.49	0.00	0.00	0.00
ONTO23	17.45	1.00	0.00	6.00	2.00	2.00
ONTO24	0.00	0.00	0.00	5.96	2.00	2.00
ONTO25	8.70	6.23	7.55	3.00	1.00	1.00
OYDM11	20.00	0.00	0.00	0.00	0.00	0.00
PNCK11	0.00	0.00	3.00	3.14	6.00	5.00
PNCK12	14.07	9.00	2.00	0.00	0.00	0.00
PRMA12	10.07	11.00	17.00	4.00	6.00	6.00
PRMA42	3.27	14.00	9.40	6.57	7.00	7.00
RKVL11	6.61	7.56	5.91	8.00	11.00	9.00
UNTY11	2.07	1.54	3.67	7.27	9.00	9.00
UNTY12	2.70	10.37	3.56	6.30	8.00	8.00
VALE11	0.52	2.00	0.00	2.68	0.00	0.00
VALE13	1.00	0.67	4.00	7.83	9.18	9.18
VALE14	0.52	3.79	0.00	9.00	0.00	0.00
VALE15	1.00	1.00	0.00	4.00	0.00	0.00
WESR13	0.00	0.00	0.00	1.00	2.00	2.00
WESR14	0.00	0.00	0.00	3.45	0.00	0.00

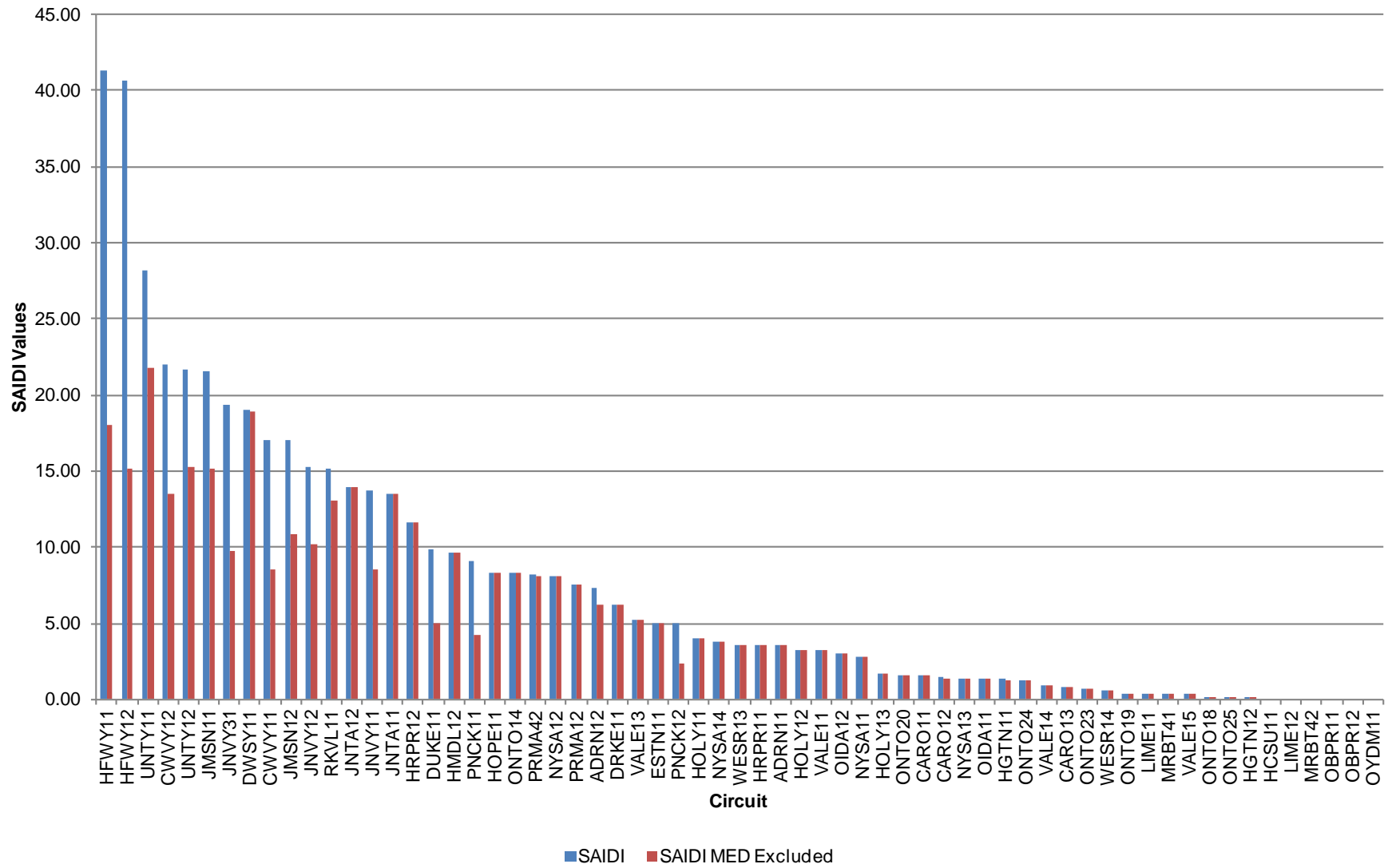


**Table 4**  
2013 descending order sort of reliability indices by circuit

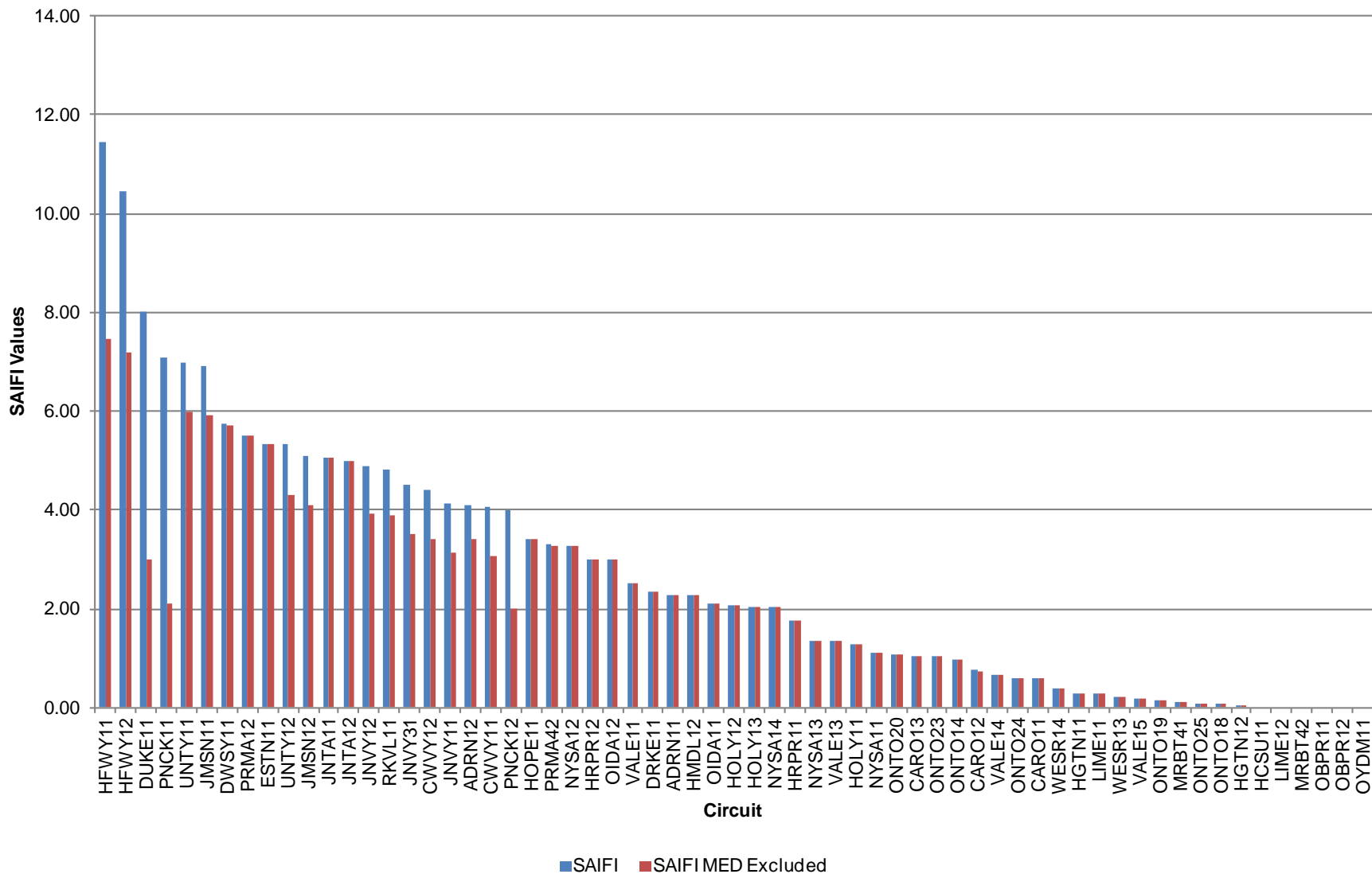
Circuit	SAIDI		Circuit	SAIFI		Circuit	MAIFI <sub>E</sub>	
	SAIDI	MED Excluded		SAIFI	MED Excluded		MAIFI <sub>E</sub>	MED Excluded
HFVY11	41.28	18.08	HFVY11	11.46	7.46	ADRN12	28.94	28.00
HFVY12	40.71	15.18	HFVY12	10.44	7.20	DWSY11	22.00	22.00
UNTY11	28.17	21.78	DUKE11	8.00	3.00	JNTA12	21.98	21.98
UNTY12	21.64	15.25	PNCK11	7.07	2.10	HRPR12	15.38	15.38
JMSN11	21.53	15.15	UNTY11	6.99	5.99	HFVY11	14.00	13.00
CWVY12	21.13	12.59	JMSN11	6.92	5.92	HFVY12	13.00	8.00
JNVY31	19.33	9.77	DWSY11	5.76	5.72	ADRN11	11.73	11.73
DWSY11	19.03	18.92	PRMA12	5.50	5.50	JNVY31	11.35	11.35
CWVY11	17.05	8.50	ESTN11	5.33	5.33	RKVL11	11.00	9.00
JMSN12	17.00	10.84	UNTY12	5.32	4.32	CWVY11	10.00	10.00
JNVY12	15.21	10.18	JMSN12	5.08	4.11	VALE13	9.18	9.18
RKVL11	15.12	13.04	JNTA11	5.05	5.05	JNVY12	9.00	9.00
JNTA12	13.97	13.97	JNTA12	5.00	5.00	UNTY11	9.00	9.00
JNVY11	13.73	8.52	JNVY12	4.89	3.93	CWVY12	8.31	8.31
JNTA11	13.45	13.45	RKVL11	4.81	3.89	JMSN11	8.00	8.00
HRPR12	11.67	11.67	JNVY31	4.51	3.52	JMSN12	8.00	8.00
DUKE11	9.82	5.01	CWVY12	4.38	3.38	JNVY11	8.00	8.00
HMDL12	9.62	9.62	JNVY11	4.14	3.14	NYSA11	8.00	8.00
PNCK11	9.06	4.25	ADRN12	4.10	3.42	UNTY12	8.00	8.00
HOPE11	8.34	8.34	CWVY11	4.07	3.07	NYSA12	7.98	7.98
ONTO14	8.26	8.26	PNCK12	4.00	2.00	NYSA14	7.00	7.00
PRMA42	8.15	8.13	HOPE11	3.40	3.40	PRMA42	7.00	7.00
NYSA12	8.13	8.13	PRMA42	3.30	3.28	PNCK11	6.00	5.00
PRMA12	7.59	7.59	NYSA12	3.27	3.27	PRMA12	6.00	6.00
ADRN12	7.31	6.23	HRPR12	3.00	3.00	DUKE11	5.00	4.00
DRKE11	6.25	6.25	OIDA12	3.00	3.00	HGTN11	5.00	3.00
VALE13	5.20	5.20	VALE11	2.52	2.52	HGTN12	5.00	3.00
ESTN11	4.99	4.99	DRKE11	2.34	2.34	HMDL12	5.00	5.00
PNCK12	4.97	2.40	ADRN11	2.28	2.28	LIME11	4.98	3.98
HOLY11	4.02	4.02	HMDL12	2.27	2.27	CARO12	4.77	3.77
NYSA14	3.77	3.77	OIDA11	2.10	2.10	CARO13	4.00	3.00
WESR13	3.57	3.57	HOLY12	2.08	2.08	HOLY11	4.00	4.00
ADRN11	3.49	3.49	HOLY13	2.05	2.05	CARO11	3.04	3.04
HRPR11	3.35	3.35	NYSA14	2.02	2.02	DRKE11	3.00	2.00
HOLY12	3.25	3.25	HRPR11	1.73	1.73	HOLY12	3.00	3.00

**Table 4 (continued)**

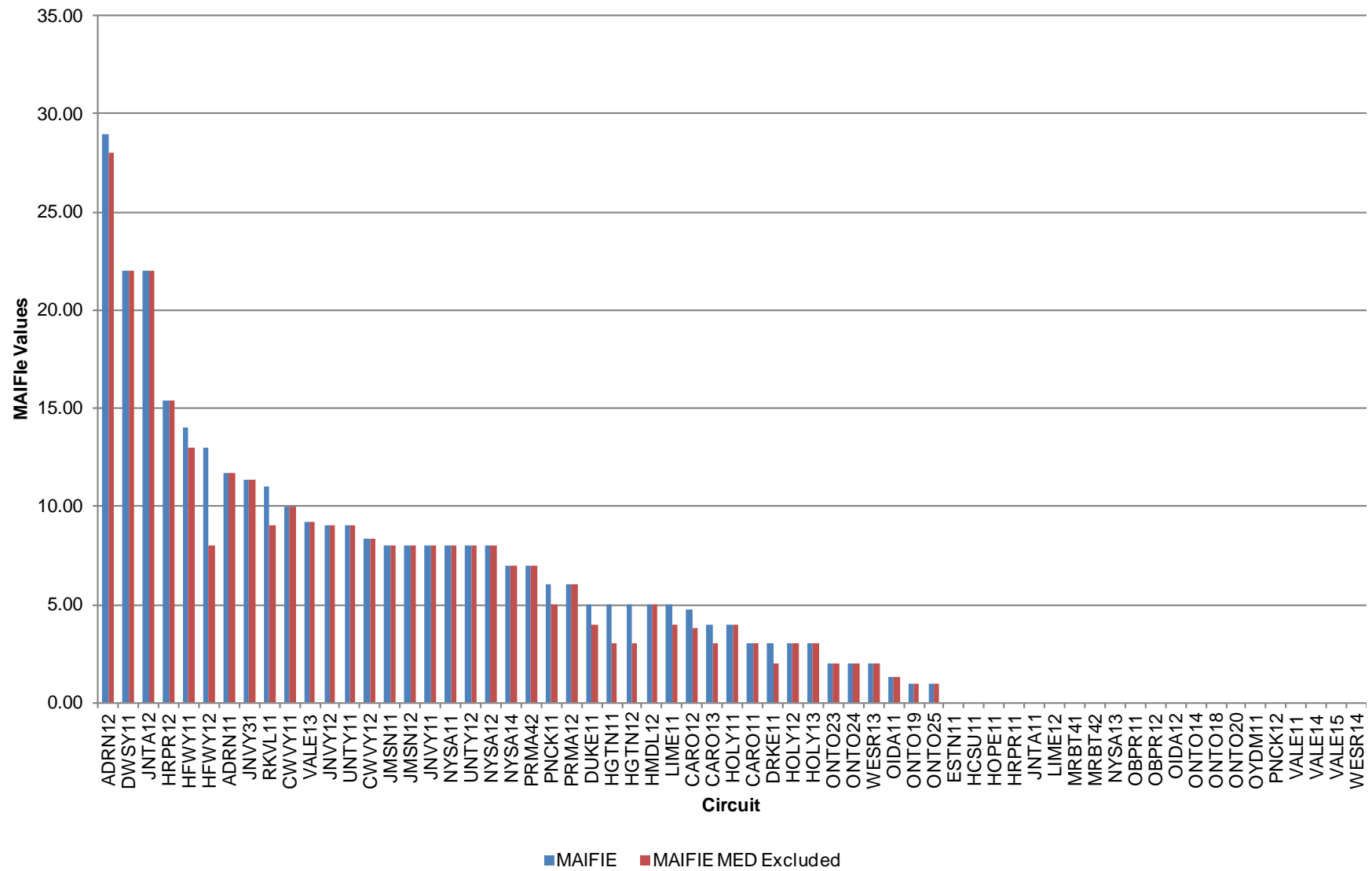
Circuit	SAIDI		Circuit	SAIFI		Circuit	MAIFI <sub>E</sub>	
	SAIDI	MED Excluded		SAIFI	MED Excluded		MAIFI <sub>E</sub>	MED Excluded
VALE11	3.23	3.23	NYSA13	1.36	1.36	HOLY13	3.00	3.00
OIDA12	3.07	3.07	VALE13	1.34	1.34	ONTO23	2.00	2.00
NYSA11	2.82	2.82	HOLY11	1.28	1.28	ONTO24	2.00	2.00
HOLY13	1.64	1.64	NYSA11	1.12	1.12	WESR13	2.00	2.00
ONTO20	1.63	1.63	ONTO20	1.06	1.06	OIDA11	1.20	1.20
CARO11	1.54	1.54	CARO13	1.05	1.05	ONTO19	1.00	1.00
CARO12	1.48	1.37	ONTO23	1.04	1.04	ONTO25	1.00	1.00
NYSA13	1.41	1.41	ONTO14	0.97	0.97	ESTN11	0.00	0.00
OIDA11	1.35	1.35	CARO12	0.77	0.74	HCSU11	0.00	0.00
HGTN11	1.33	1.26	VALE14	0.68	0.68	HOPE11	0.00	0.00
ONTO24	1.25	1.23	ONTO24	0.61	0.59	HRPR11	0.00	0.00
VALE14	0.94	0.94	CARO11	0.58	0.58	JNTA11	0.00	0.00
CARO13	0.85	0.85	WESR14	0.38	0.38	LIME12	0.00	0.00
ONTO23	0.68	0.68	HGTN11	0.30	0.28	MRBT41	0.00	0.00
WESR14	0.57	0.57	LIME11	0.29	0.29	MRBT42	0.00	0.00
ONTO19	0.42	0.42	WESR13	0.23	0.23	NYSA13	0.00	0.00
LIME11	0.38	0.38	VALE15	0.17	0.17	OBPR11	0.00	0.00
MRBT41	0.34	0.34	ONTO19	0.14	0.14	OBPR12	0.00	0.00
VALE15	0.33	0.33	MRBT41	0.11	0.11	OIDA12	0.00	0.00
ONTO18	0.19	0.19	ONTO25	0.09	0.09	ONTO14	0.00	0.00
ONTO25	0.15	0.15	ONTO18	0.07	0.07	ONTO18	0.00	0.00
HGTN12	0.03	0.03	HGTN12	0.02	0.02	ONTO20	0.00	0.00
HCSU11	0.00	0.00	HCSU11	0.00	0.00	OYDM11	0.00	0.00
LIME12	0.00	0.00	LIME12	0.00	0.00	PNCK12	0.00	0.00
MRBT42	0.00	0.00	MRBT42	0.00	0.00	VALE11	0.00	0.00
OBPR11	0.00	0.00	OBPR11	0.00	0.00	VALE14	0.00	0.00
OBPR12	0.00	0.00	OBPR12	0.00	0.00	VALE15	0.00	0.00
OYDM11	0.00	0.00	OYDM11	0.00	0.00	WESR14	0.00	0.00



**Figure 4**  
2013 circuit SAIDI descending values

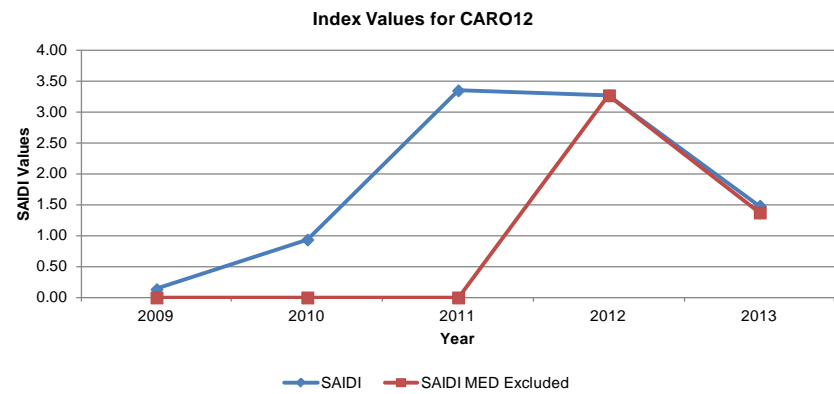
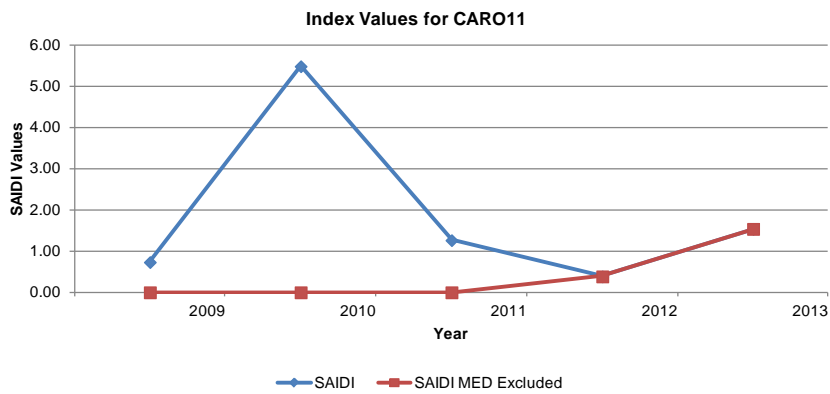
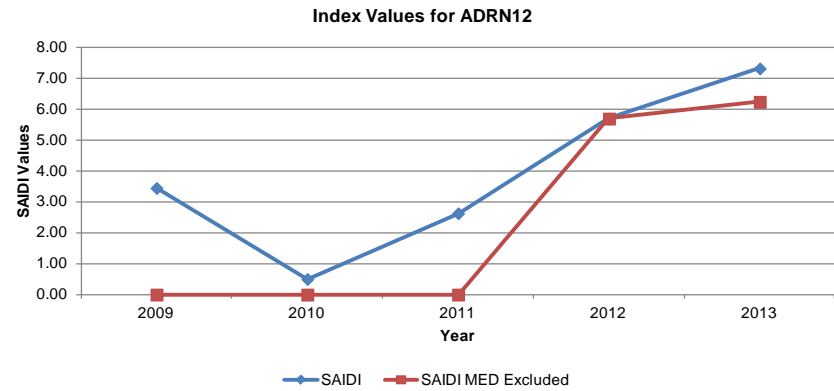
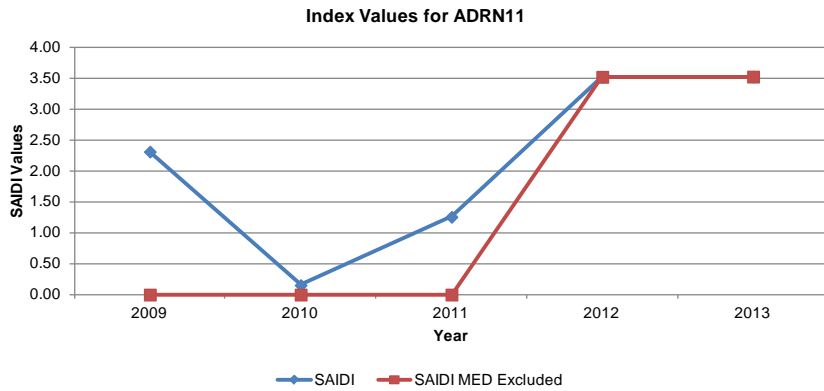


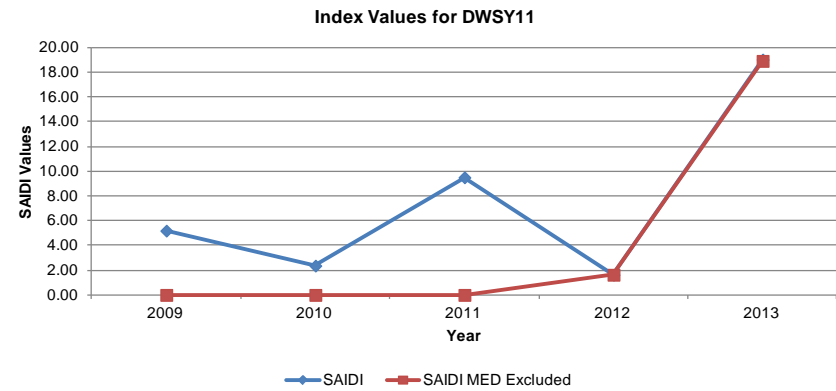
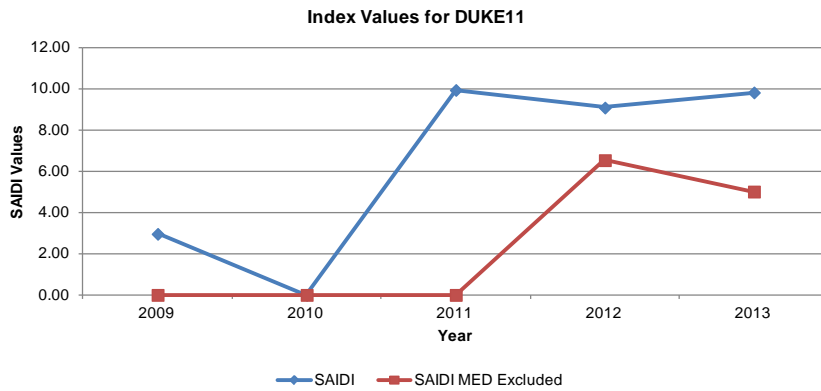
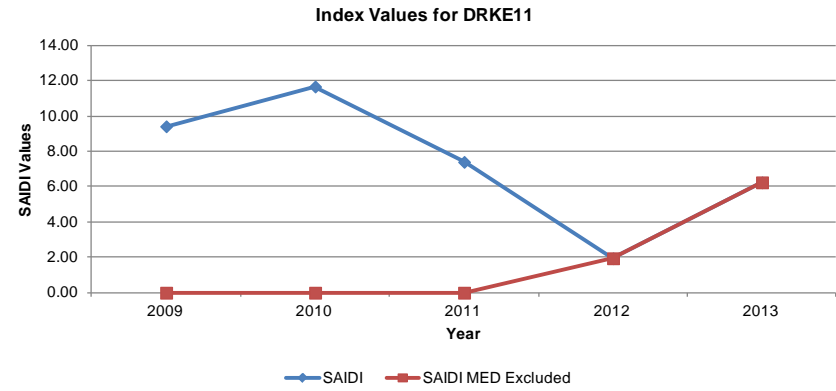
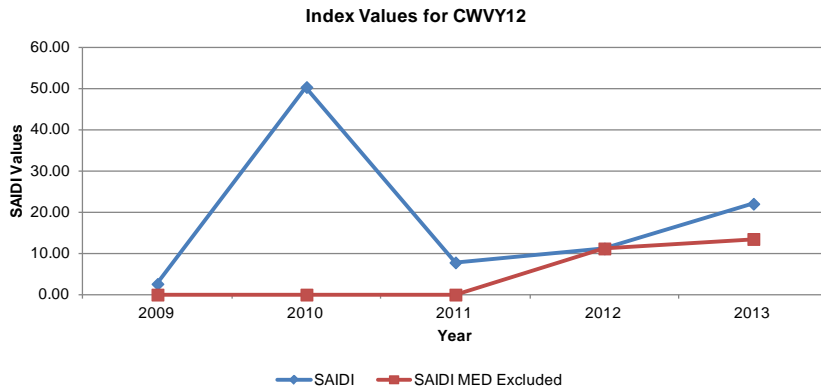
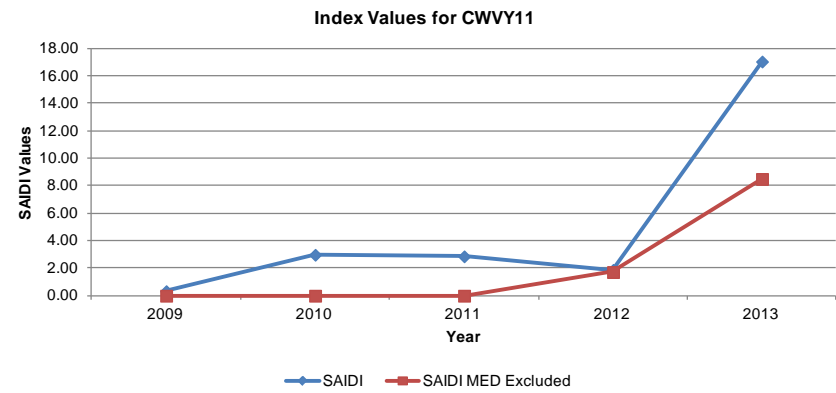
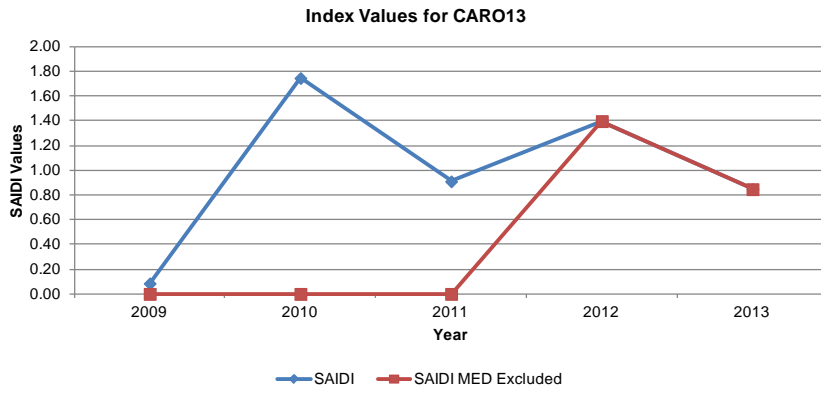
**Figure 5**  
2013 circuit SAIFI descending values

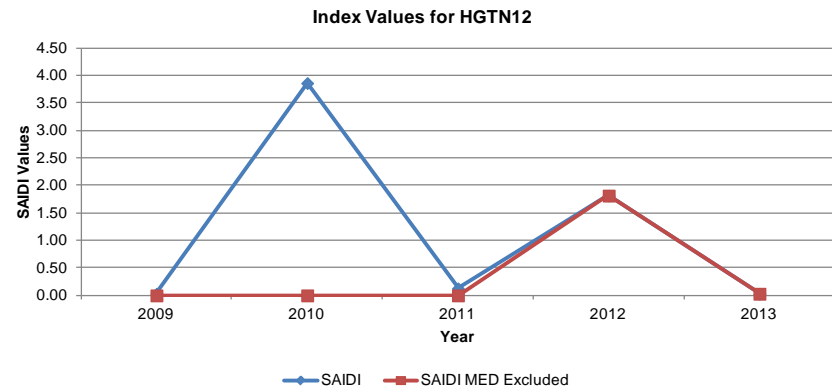
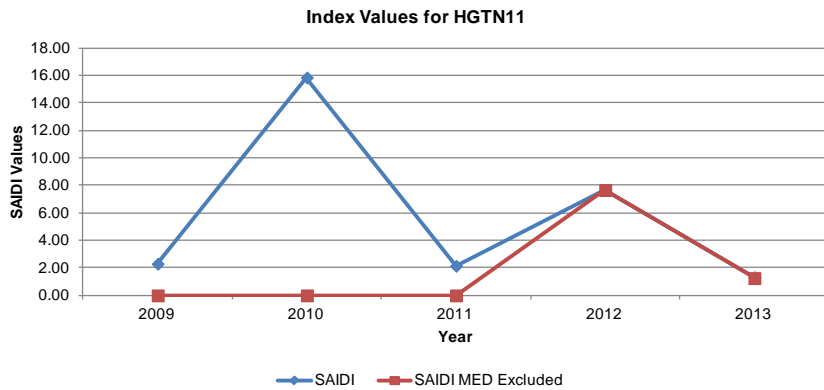
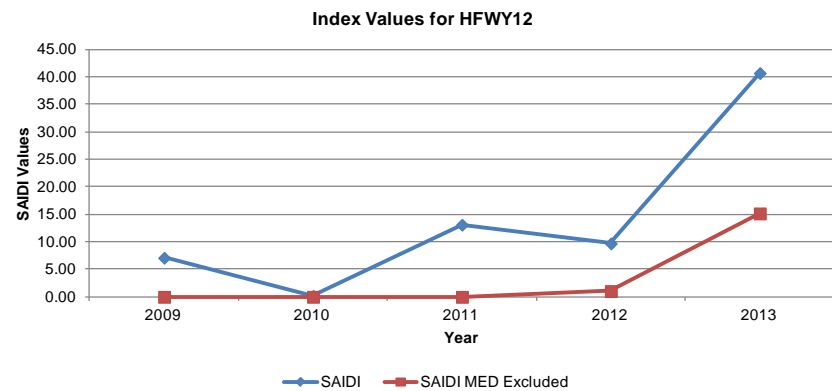
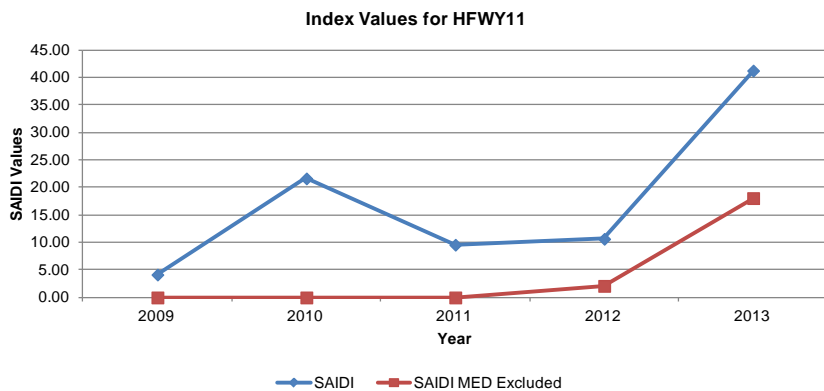
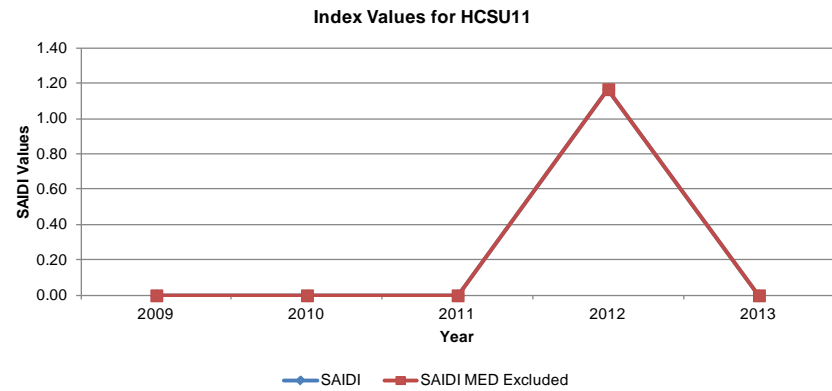
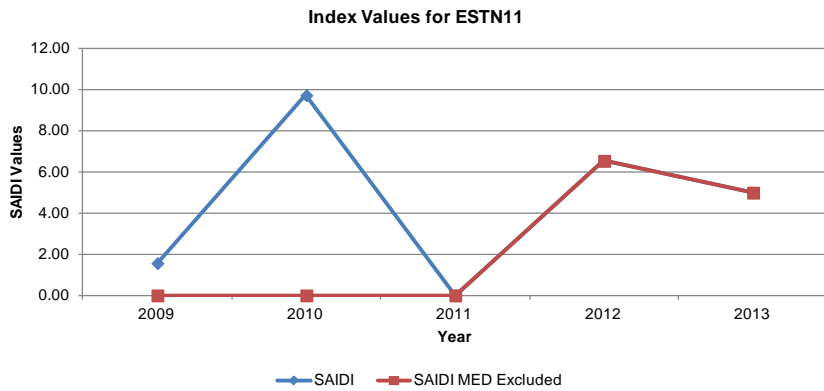


**Figure 6**  
2013 circuit MAIFIE descending values

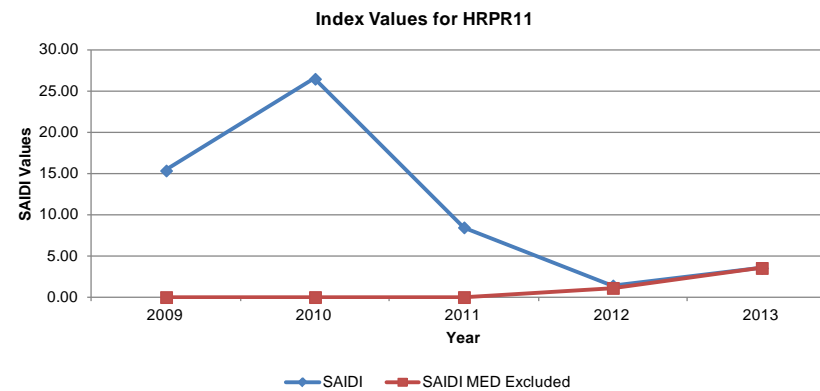
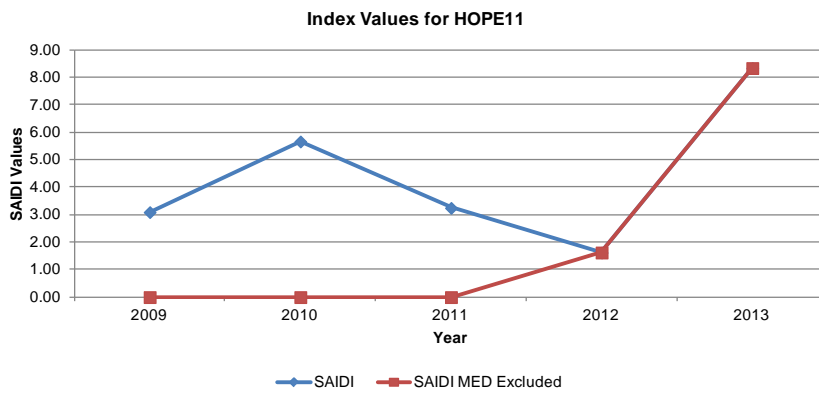
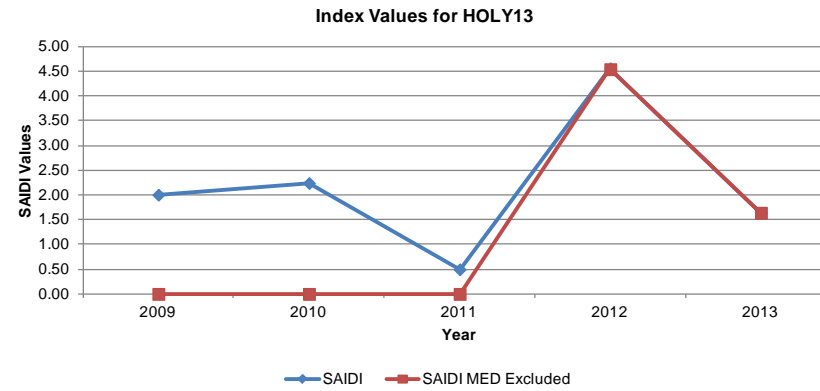
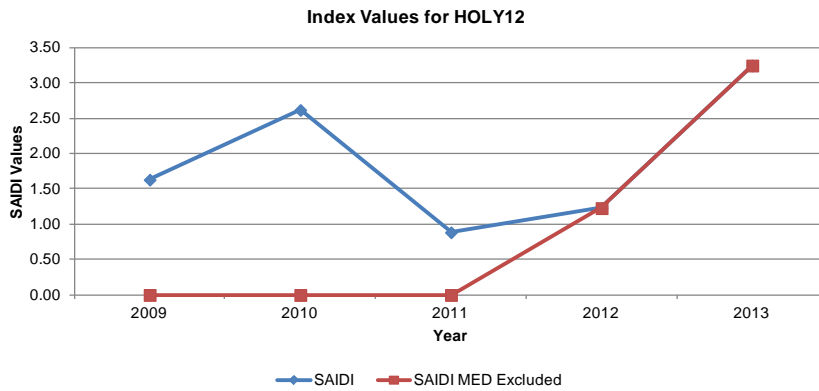
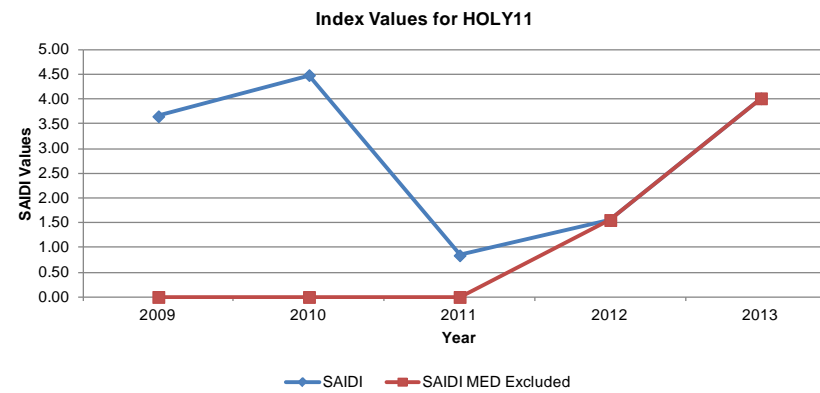
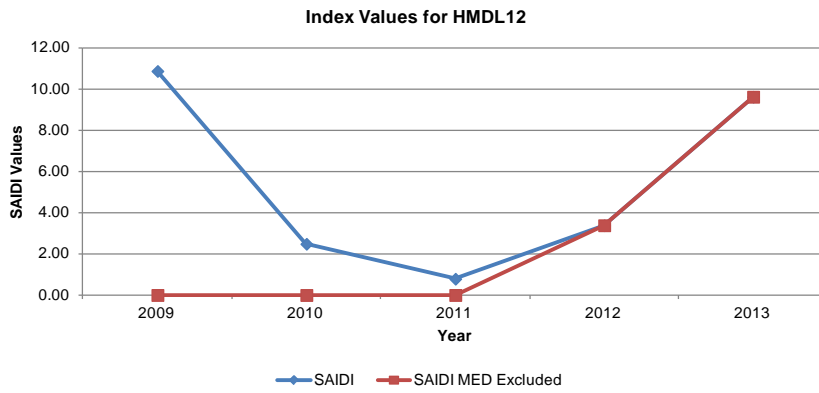
# Circuit SAIDI Values

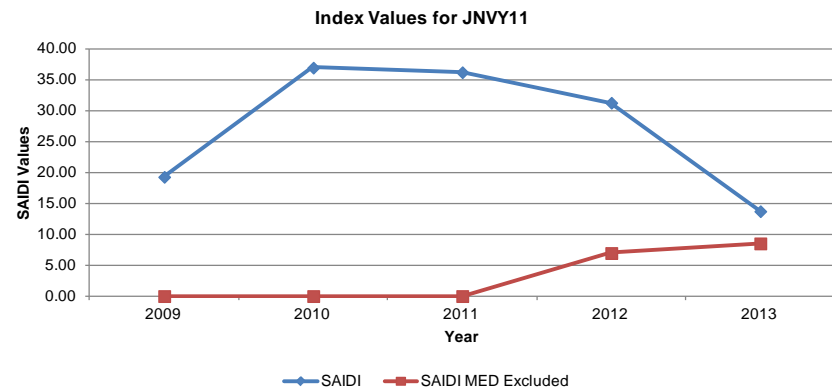
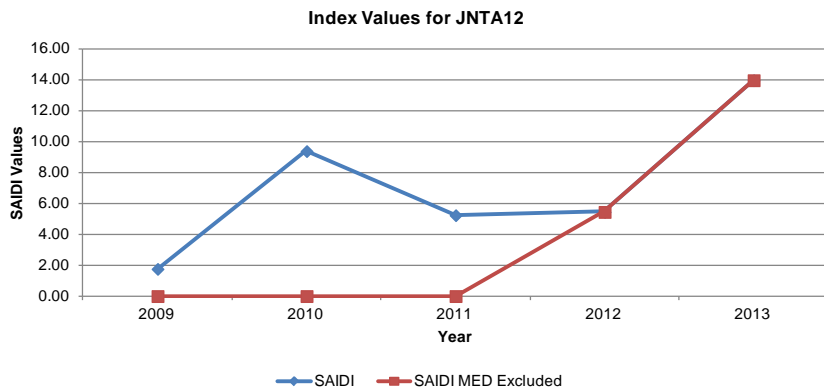
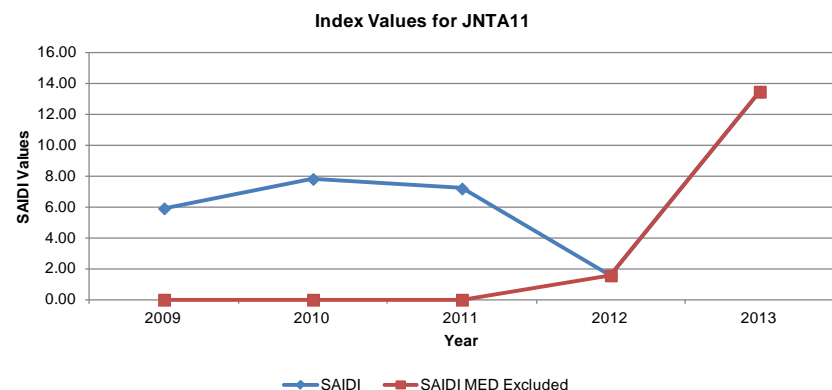
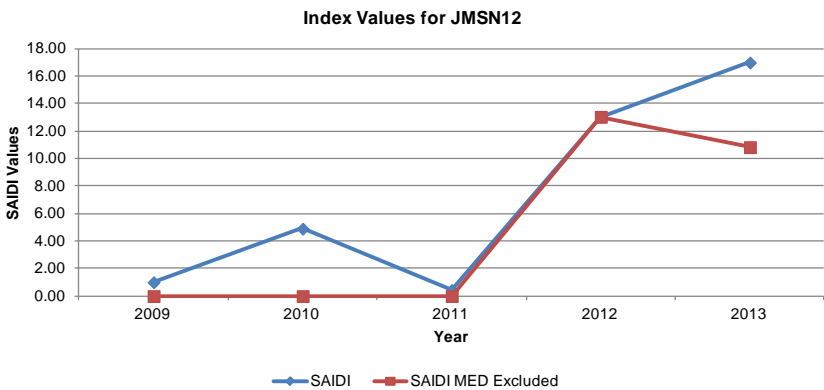
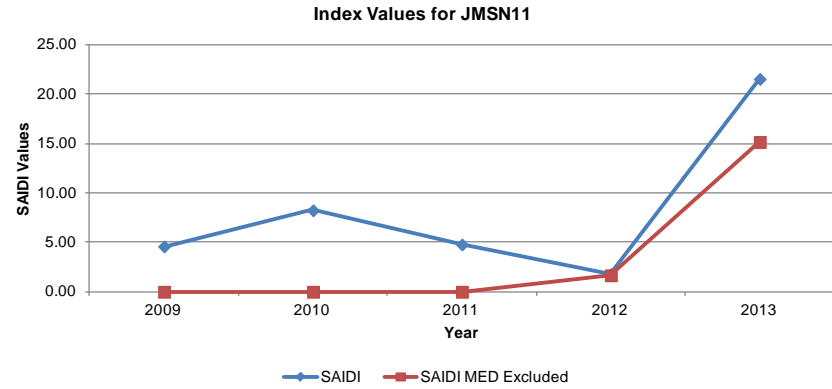
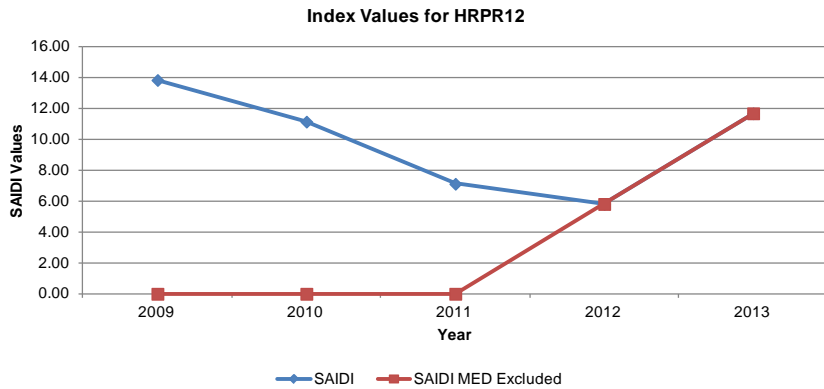


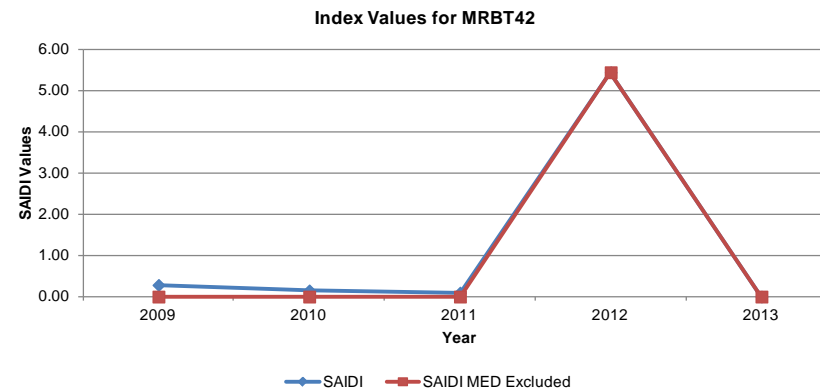
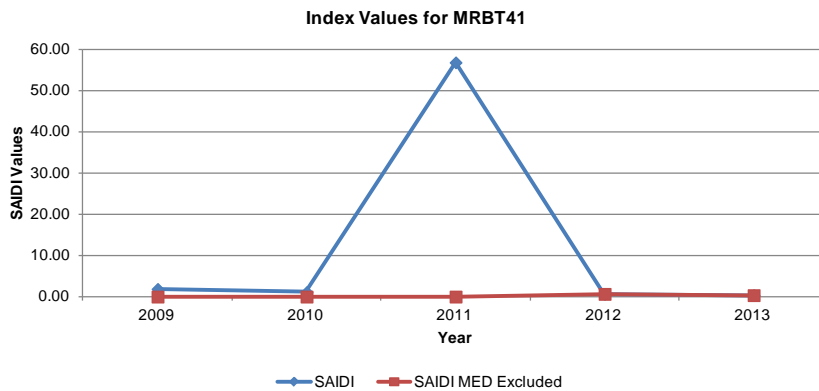
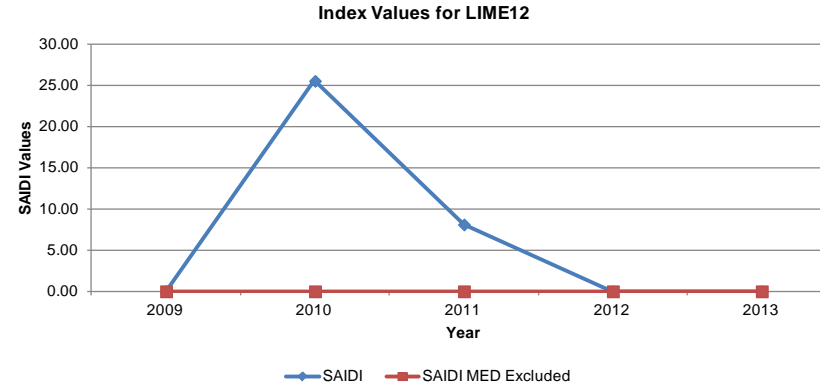
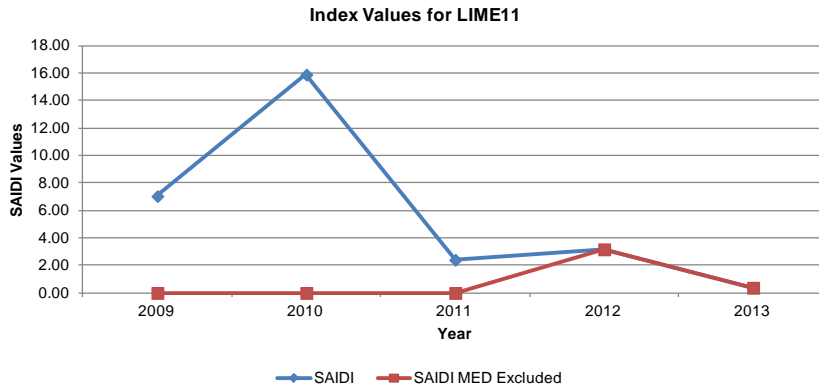
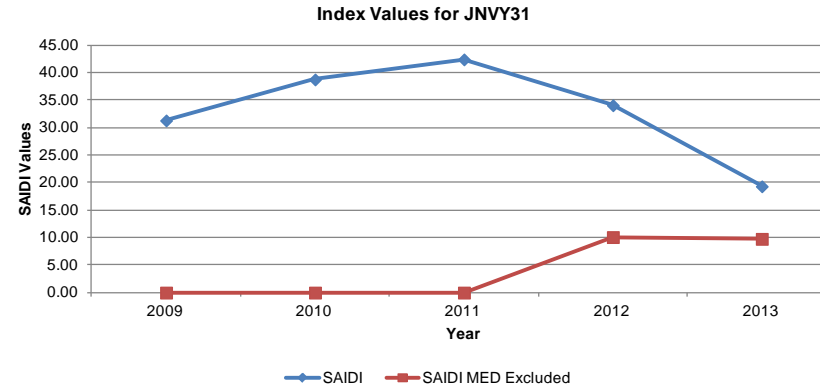
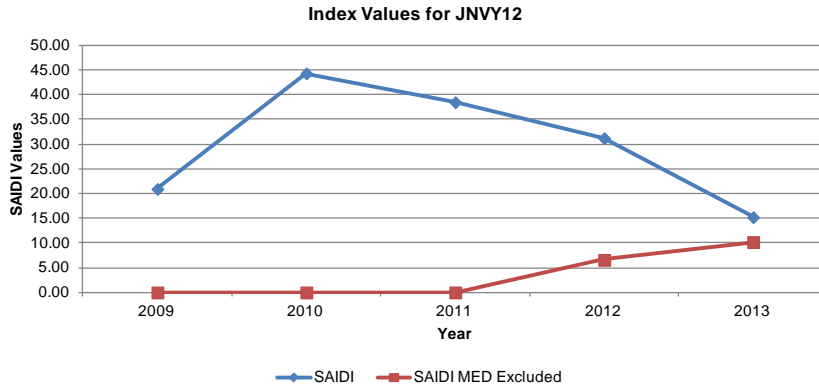


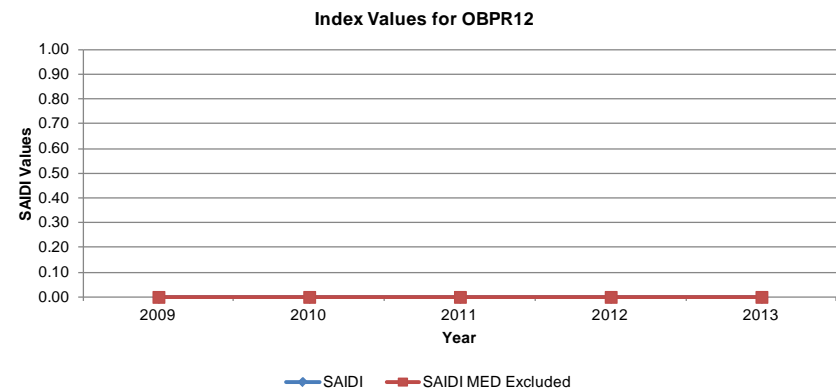
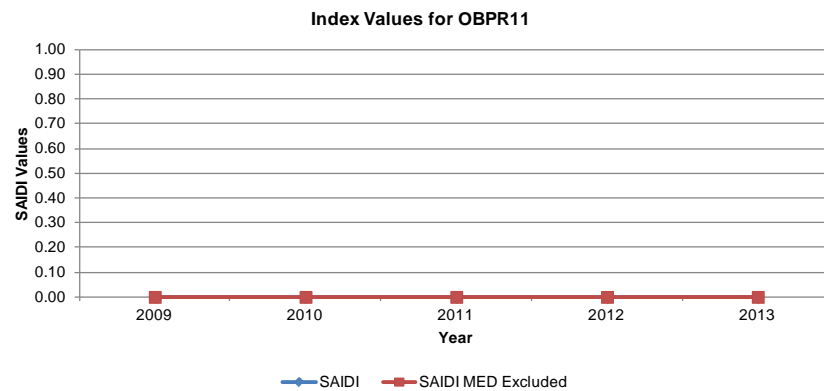
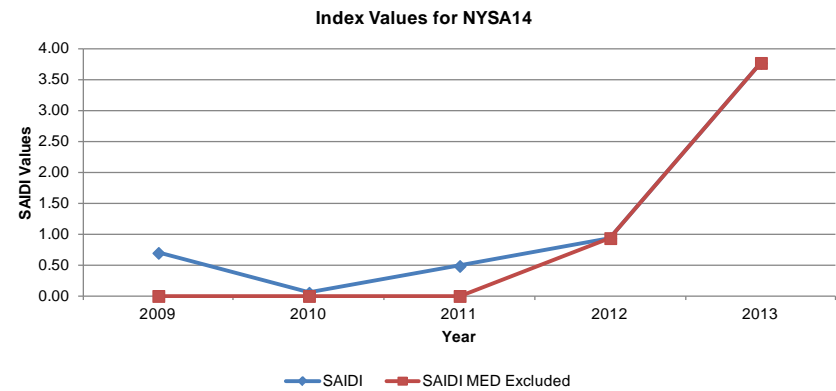
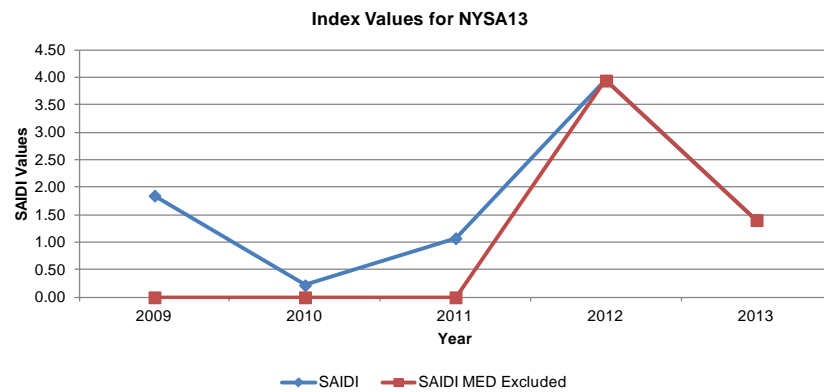
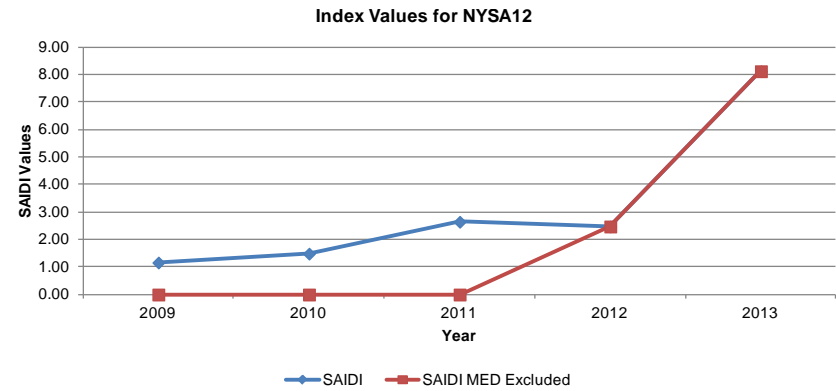
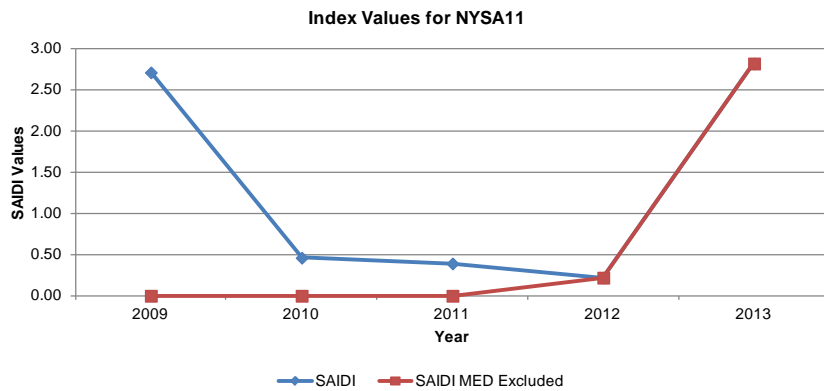


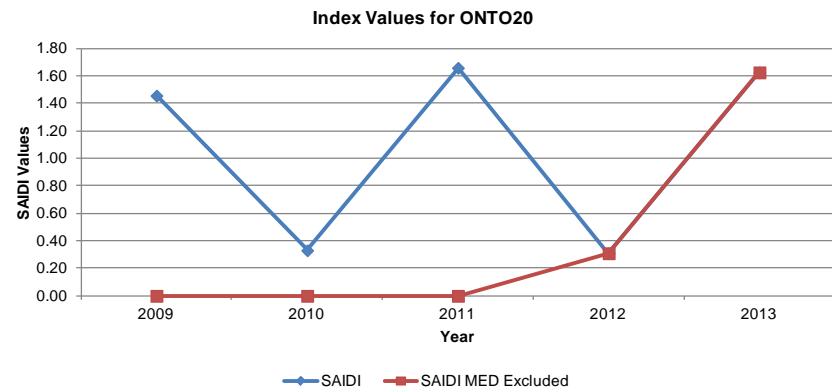
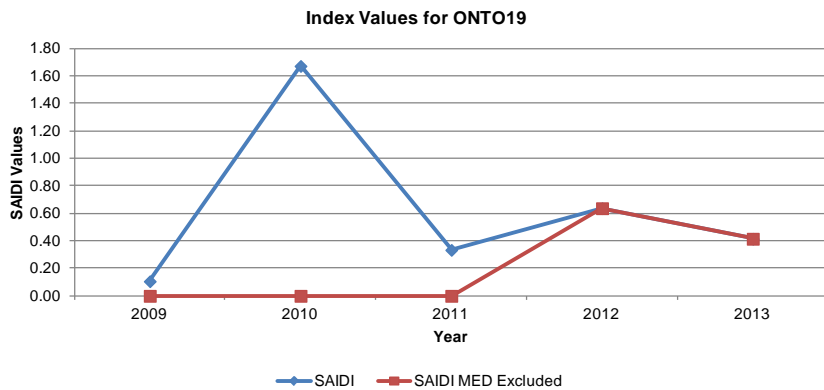
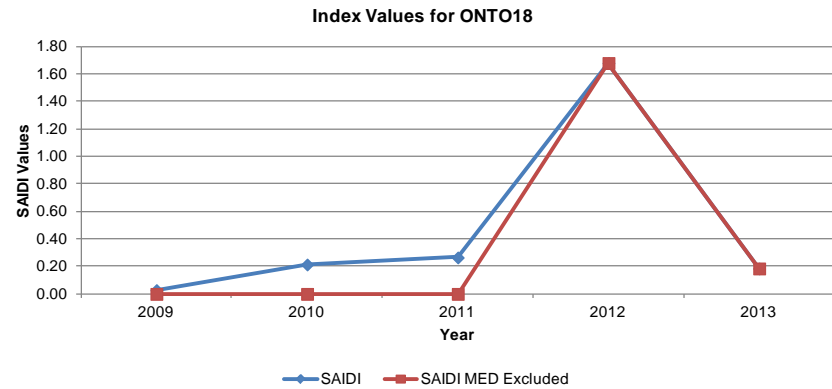
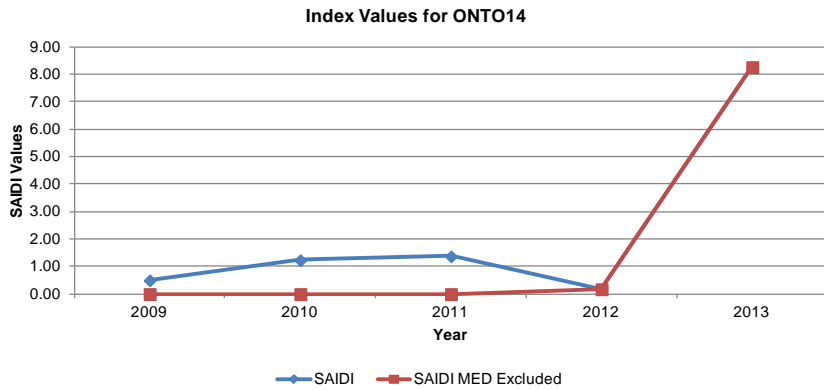
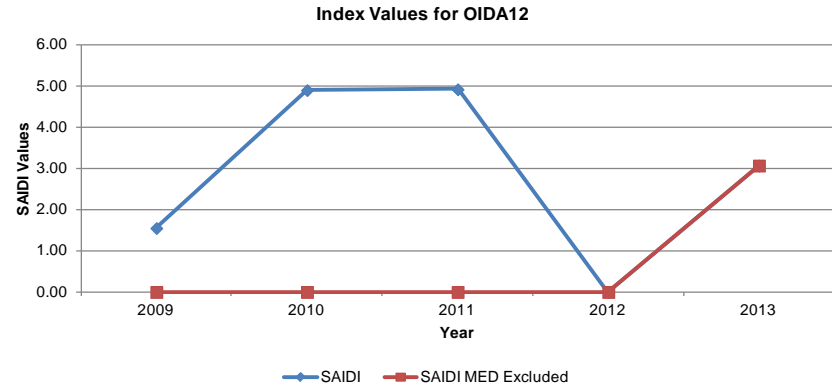
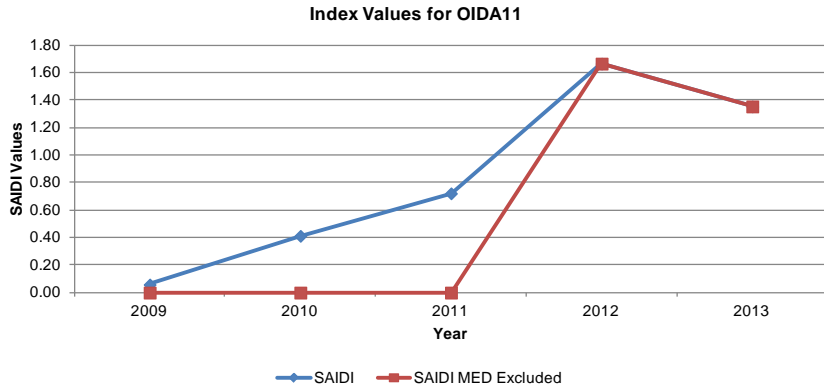


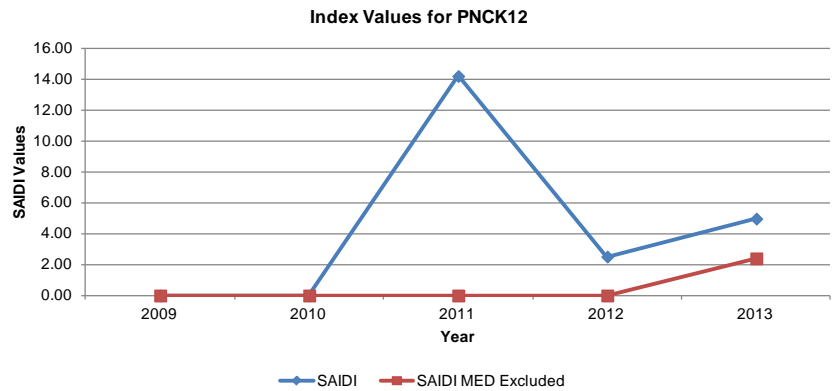
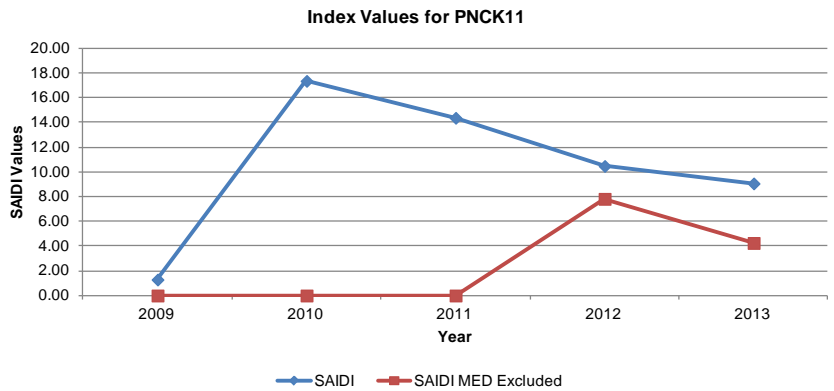
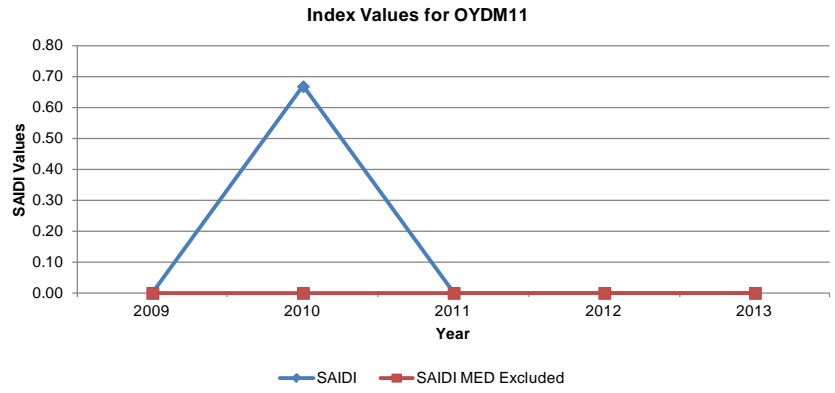
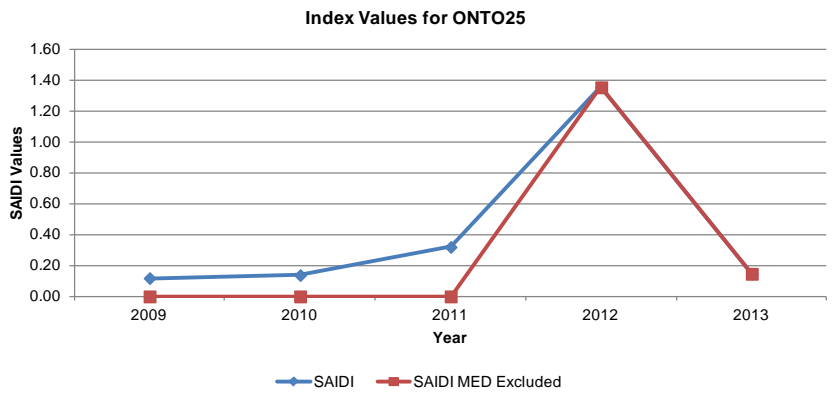
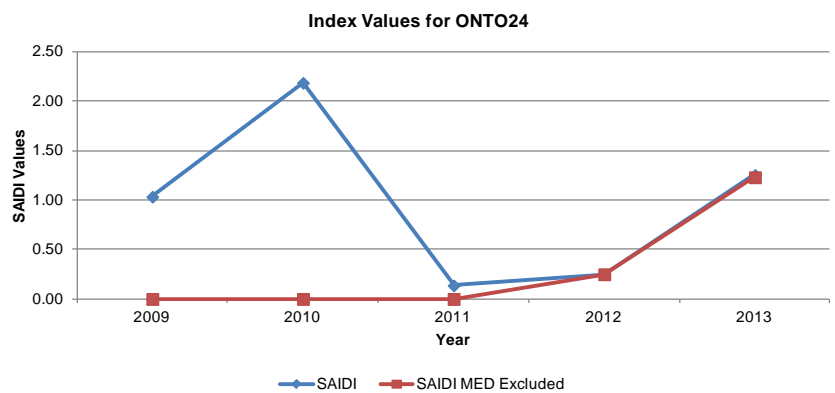
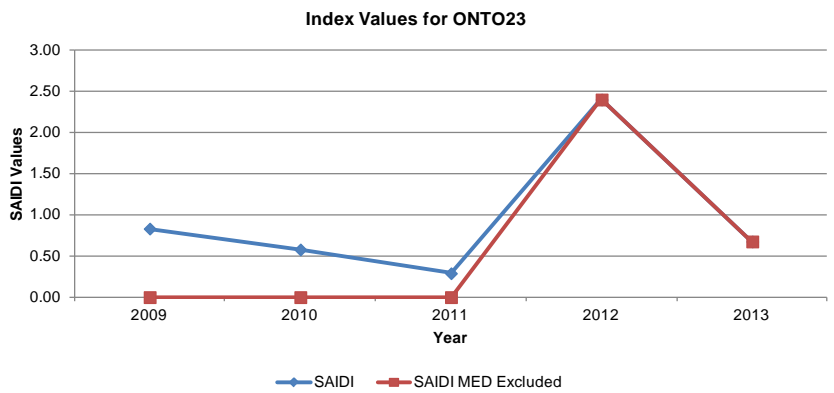


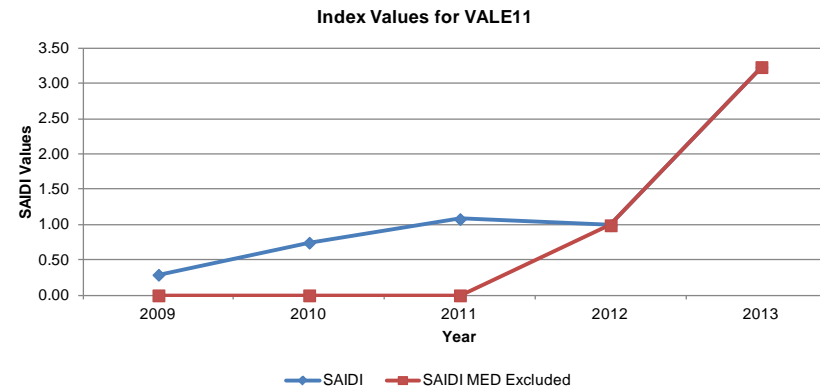
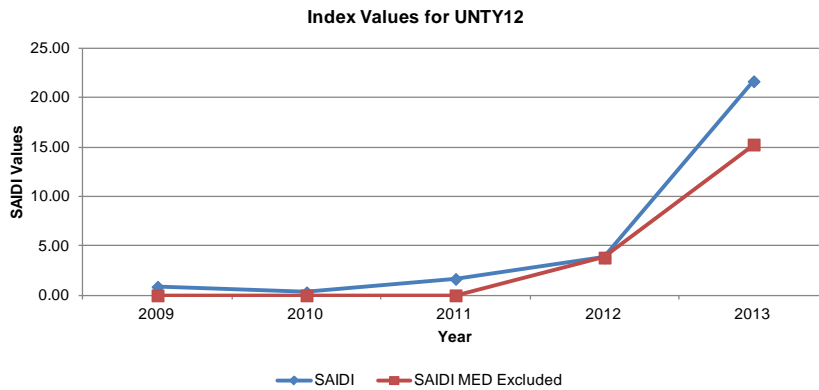
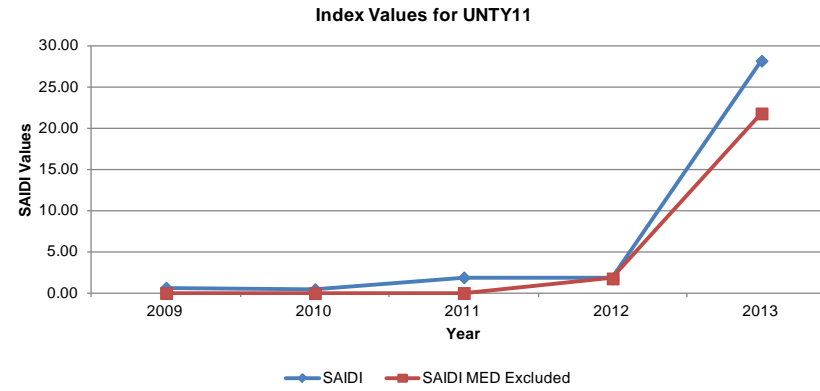
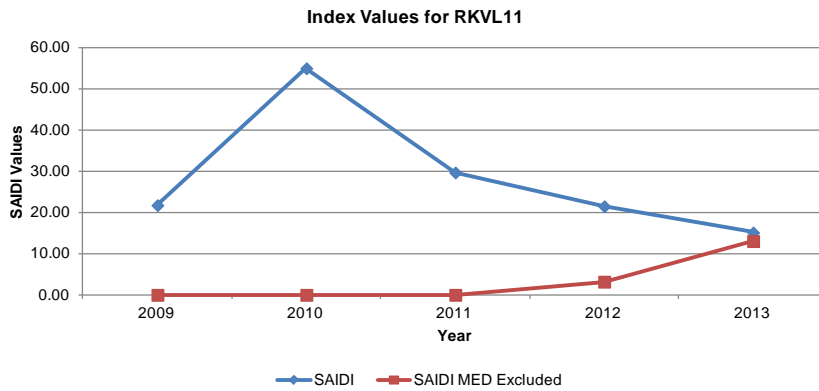
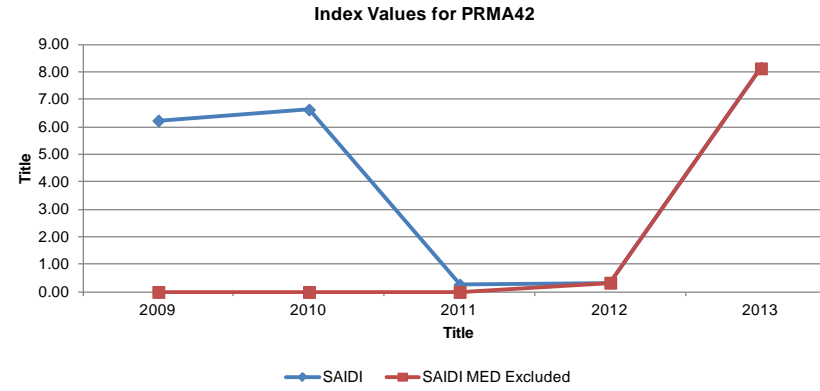
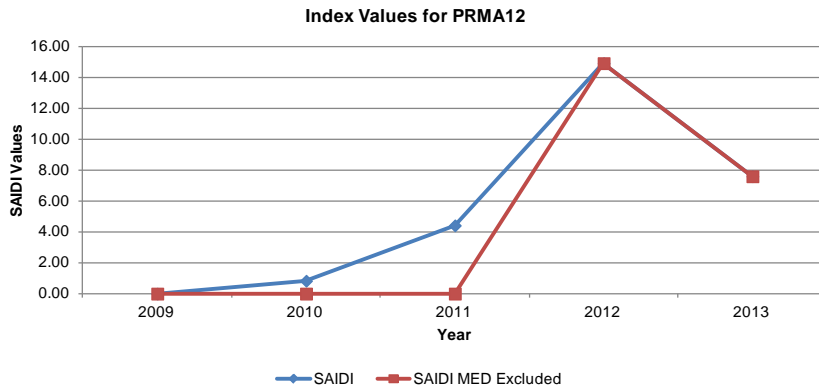




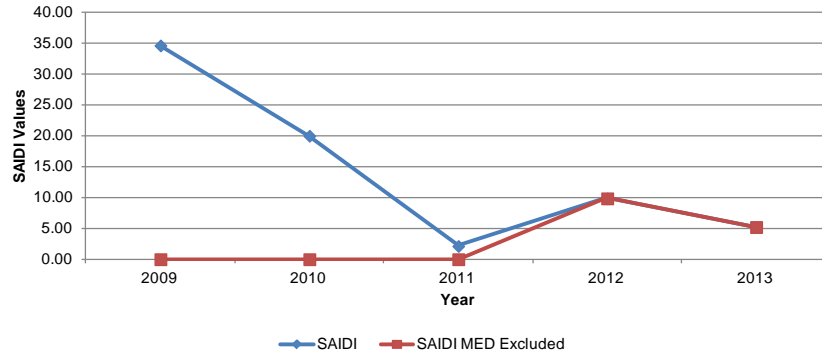




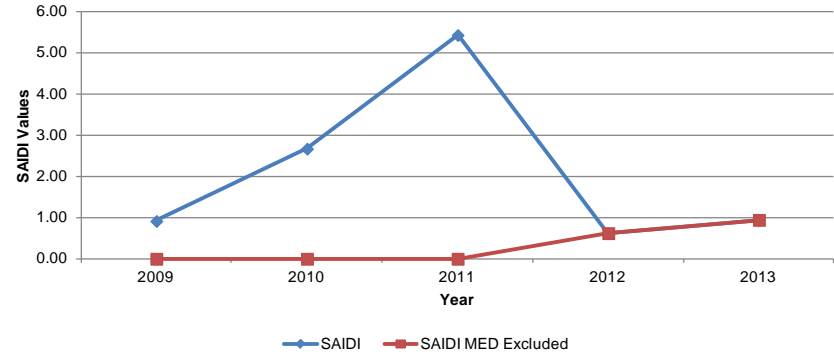




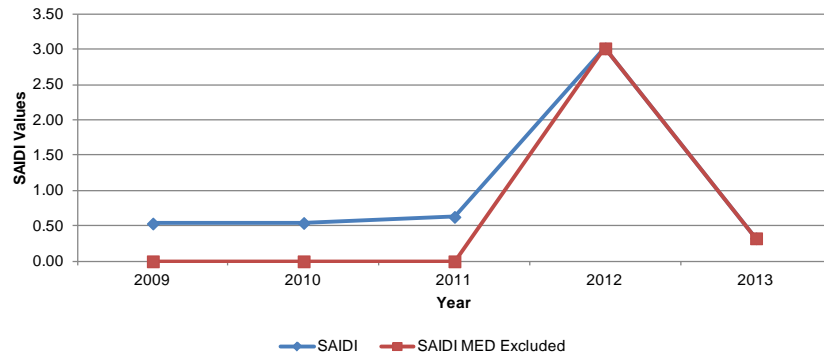
Index Values for VALE13



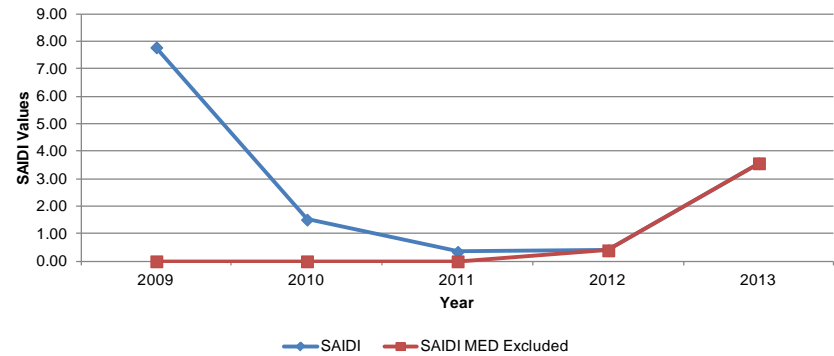
Index Values for VALE14



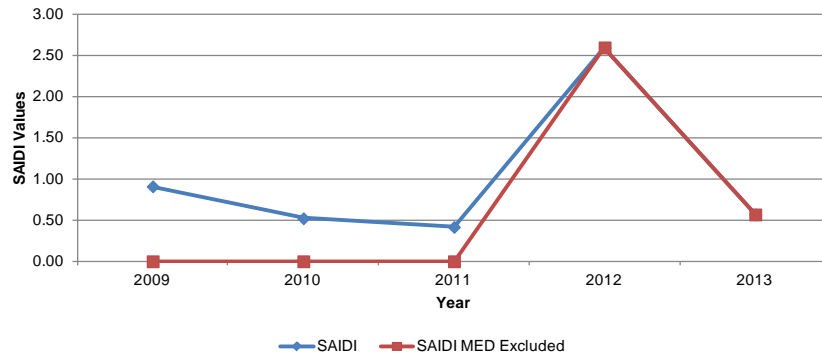
Index Values for VALE15



Index Values for WESR13



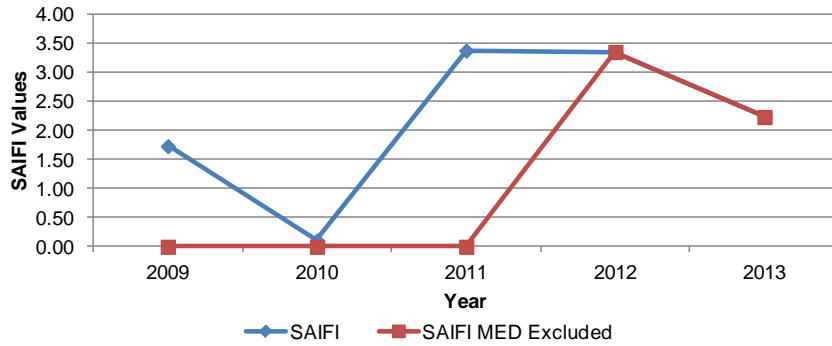
Index Values for WESR14



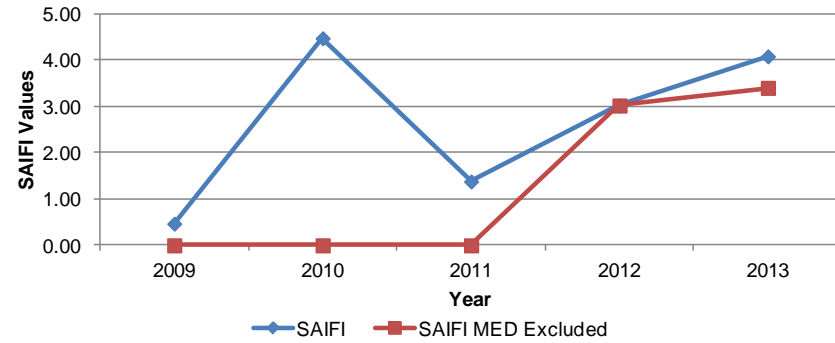


# Circuit SAIFI Values

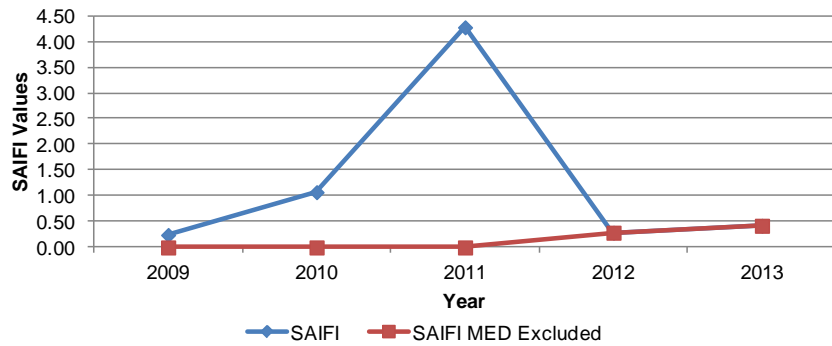
Index Values for ADRN11



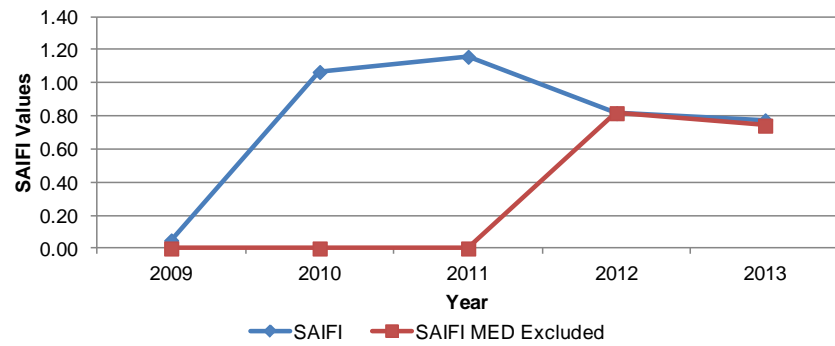
Index Values for ADRN12



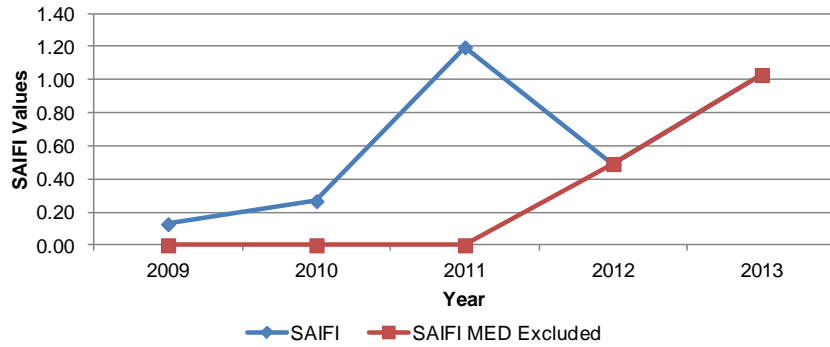
Index Values for CARO11



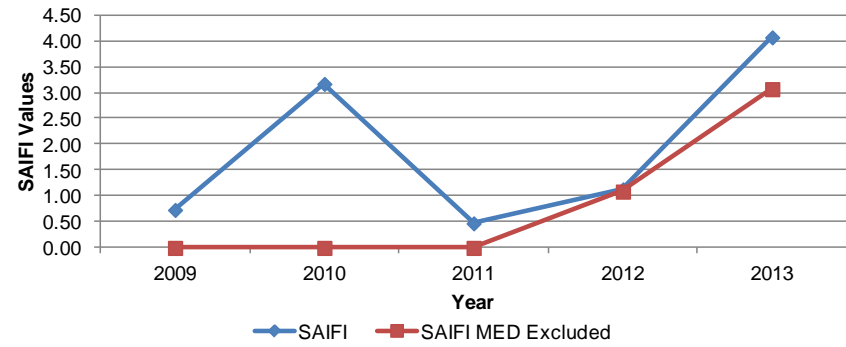
Index Values for CARO12



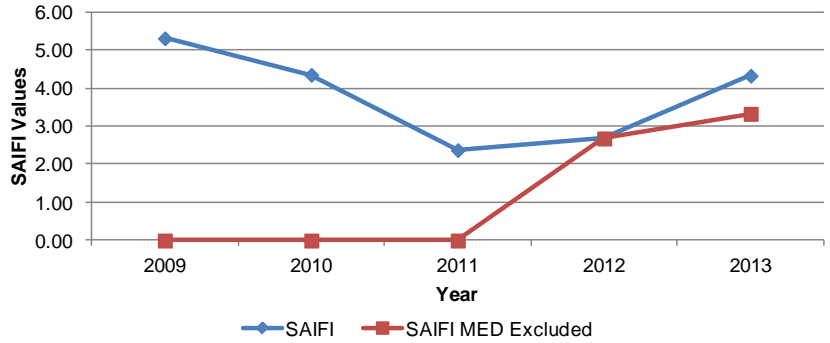
**Index Values for CARO13**



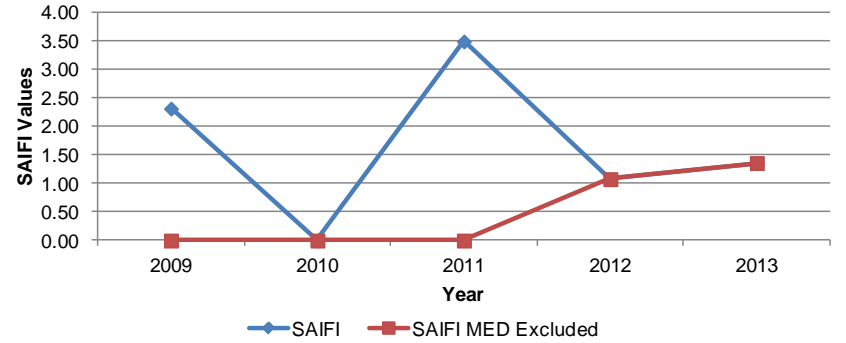
**Index Values for CWVY11**



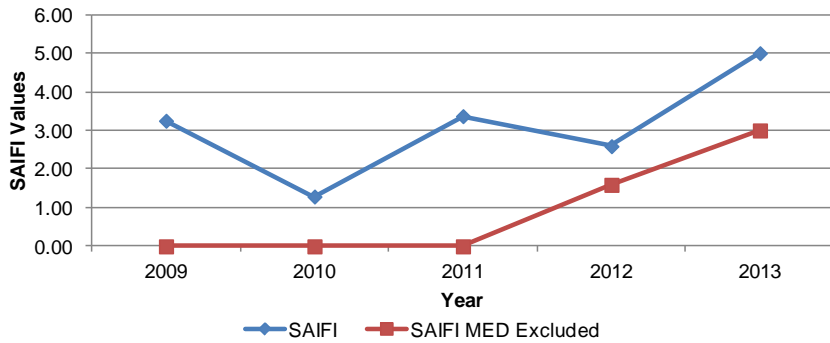
**Index Values for CWVY12**



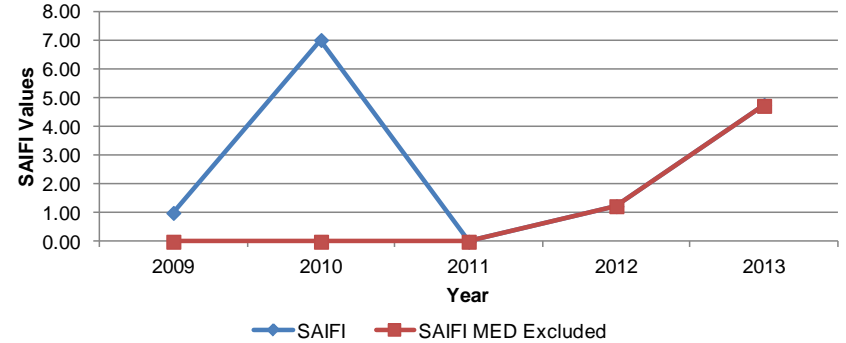
**Index Values for DRKE11**



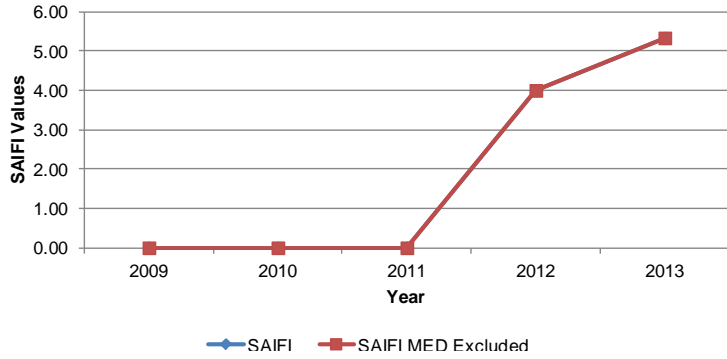
**Index Values for DUKE11**



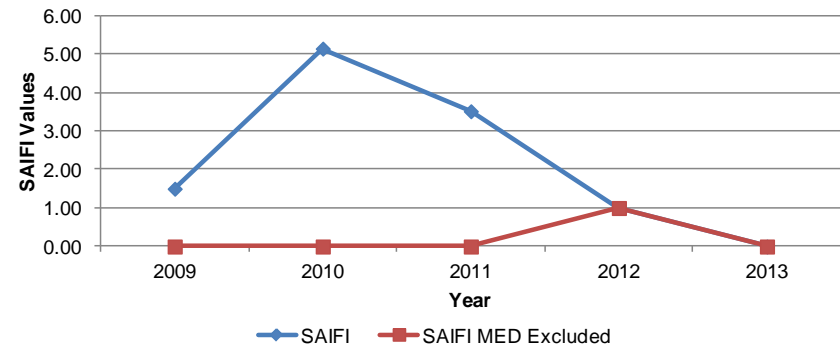
**Index Values for DWSY11**



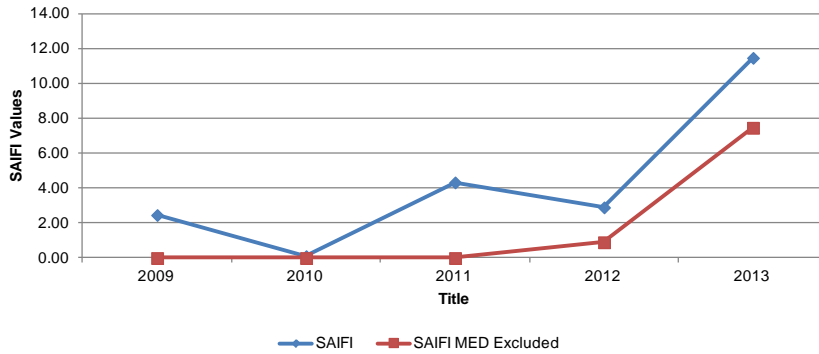
**Index Values for ESTN11**



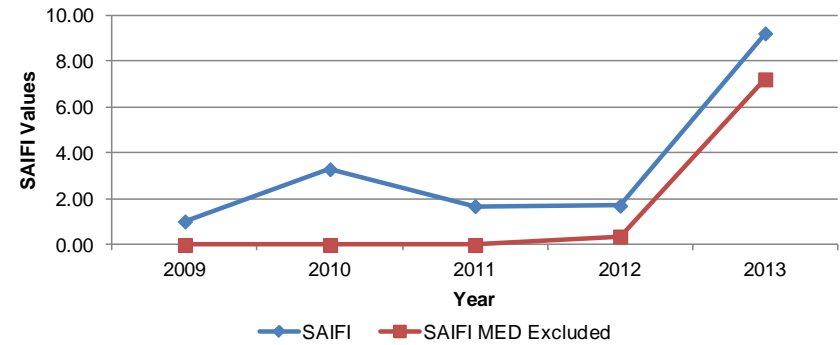
**Index Values for HCSU11**



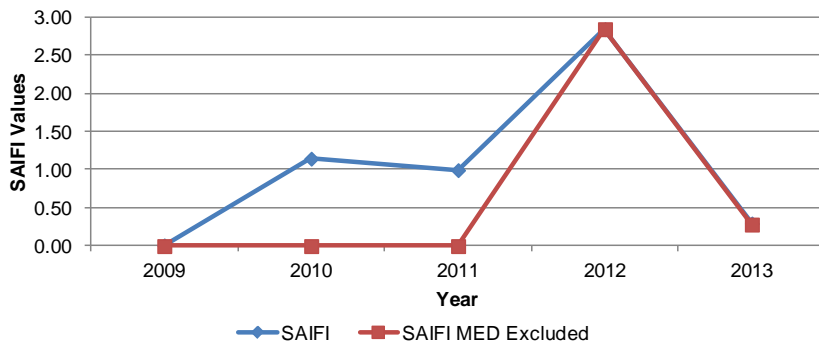
**Index Values for HFWY11**



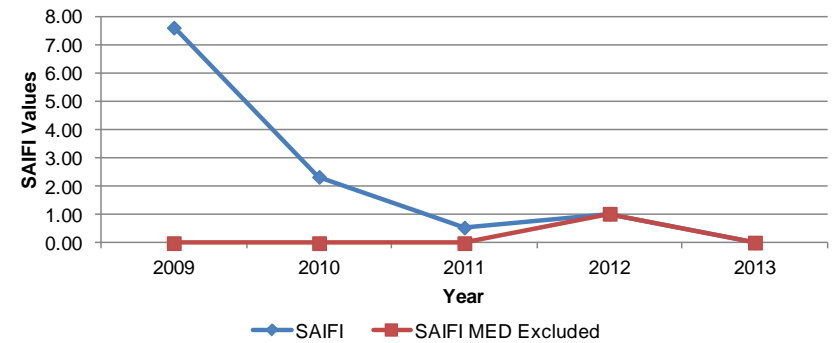
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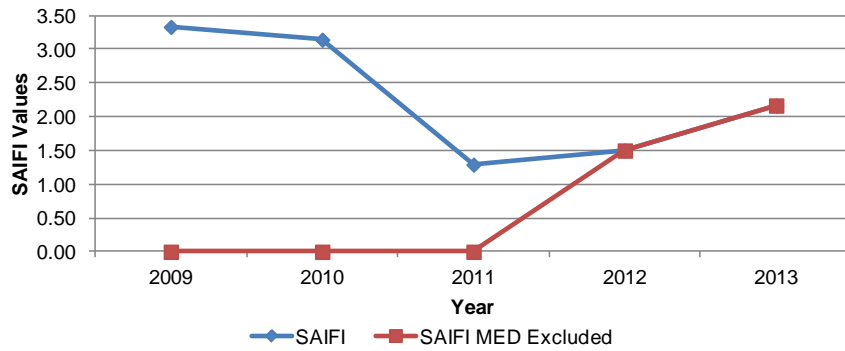
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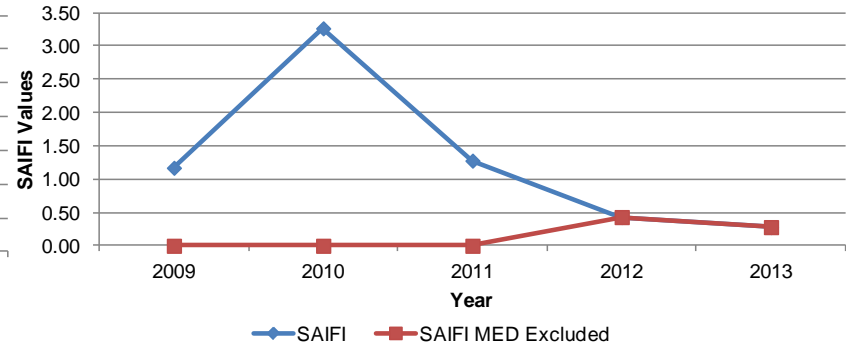
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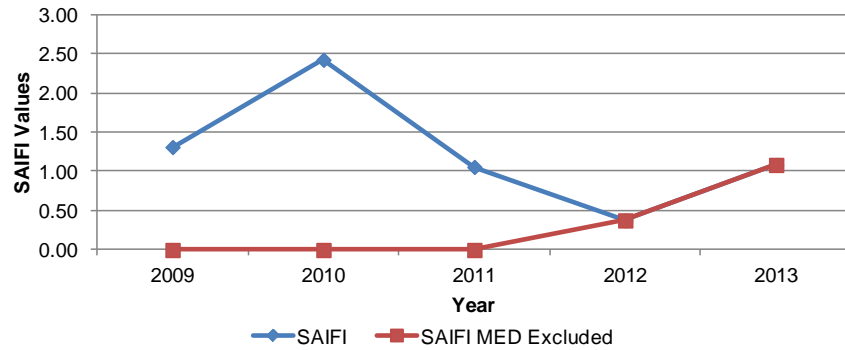
**Index Values for HMDL12**



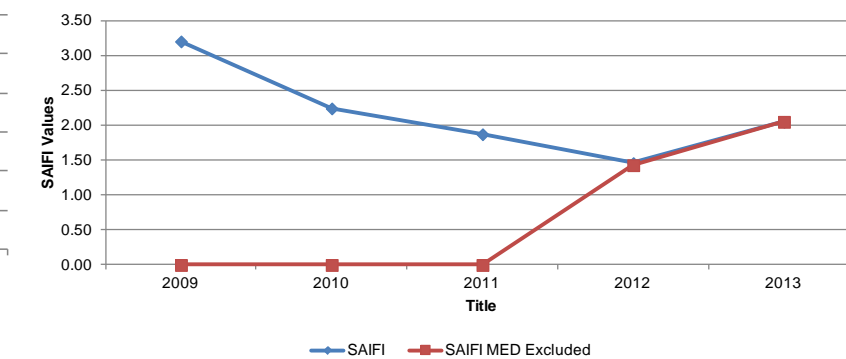
**Index Values for HOLY11**



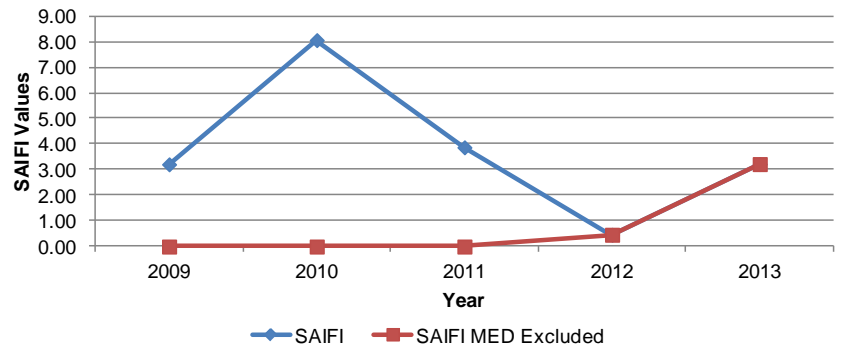
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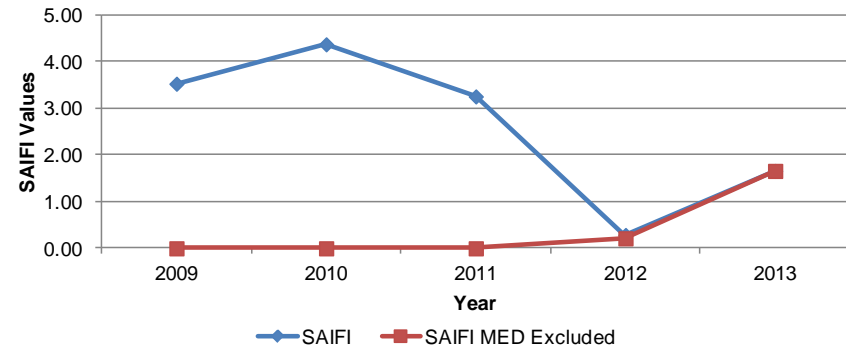
**Index Values for HOLY13**



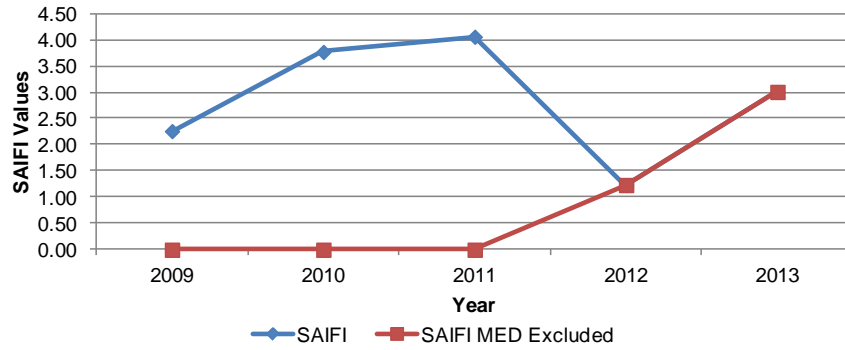
**Index Values for HOPE11**



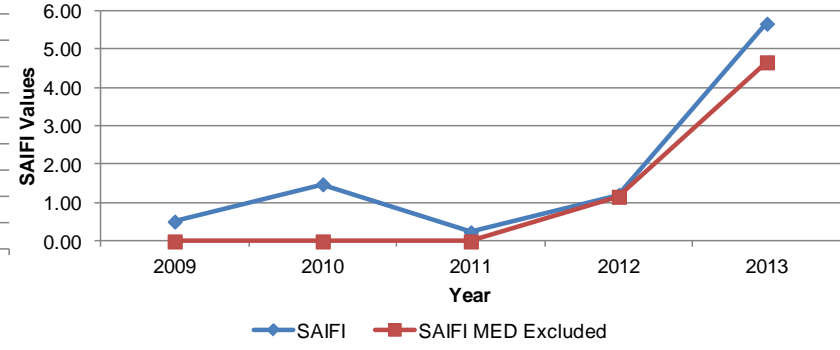
**Index Values for HRPR11**



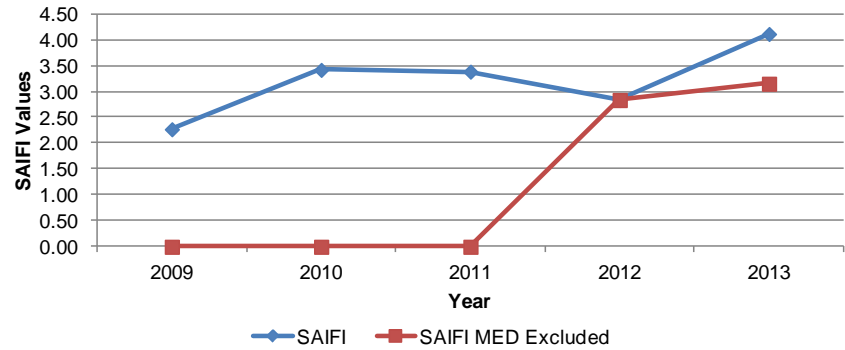
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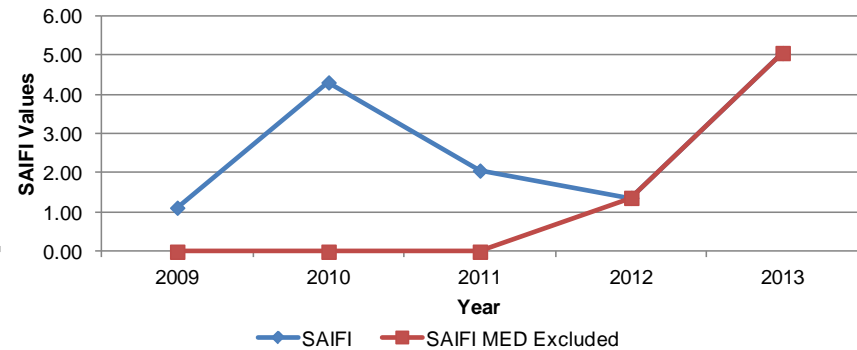
**Index Values for JMSN11**



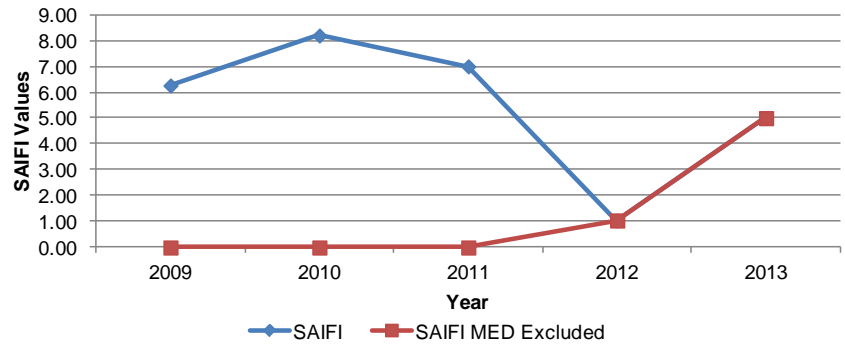
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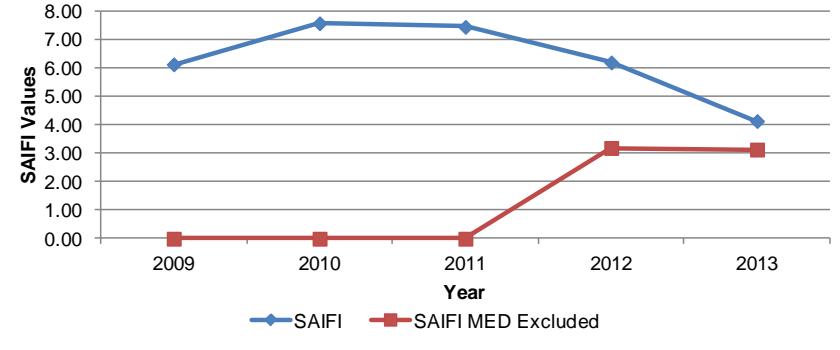
**Index Values for JNTA11**



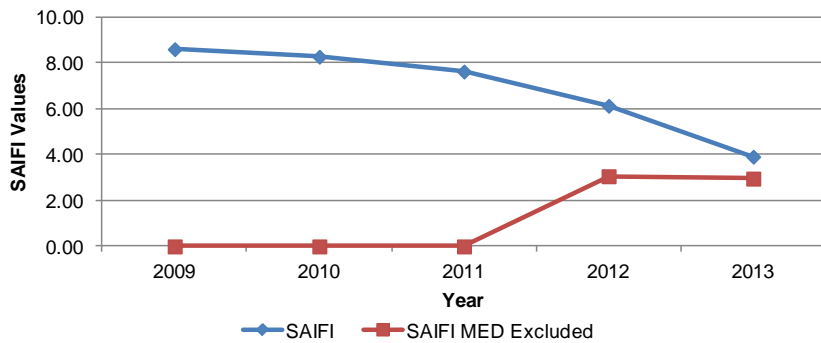
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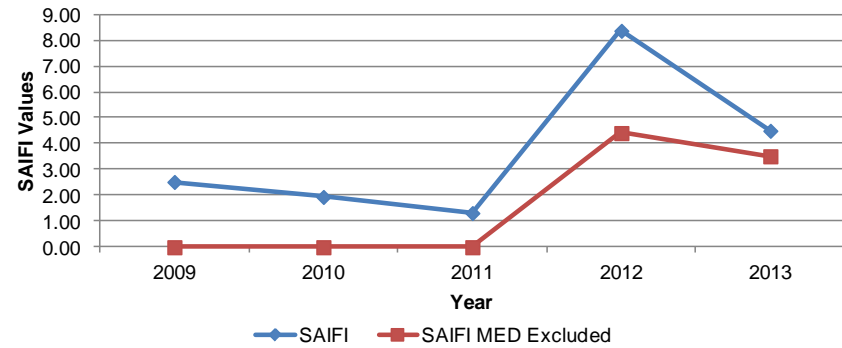
**Index Values for JNVY11**



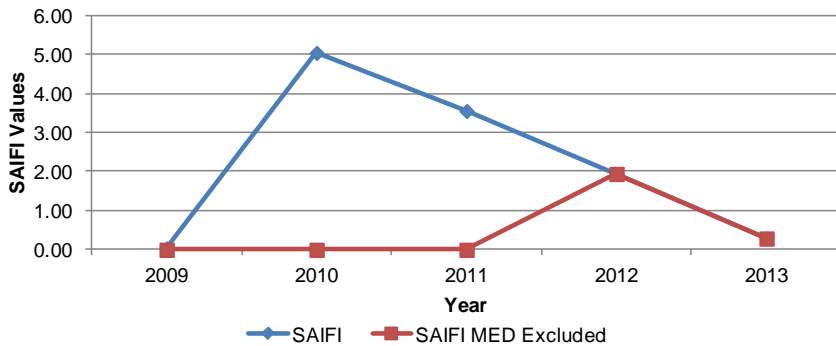
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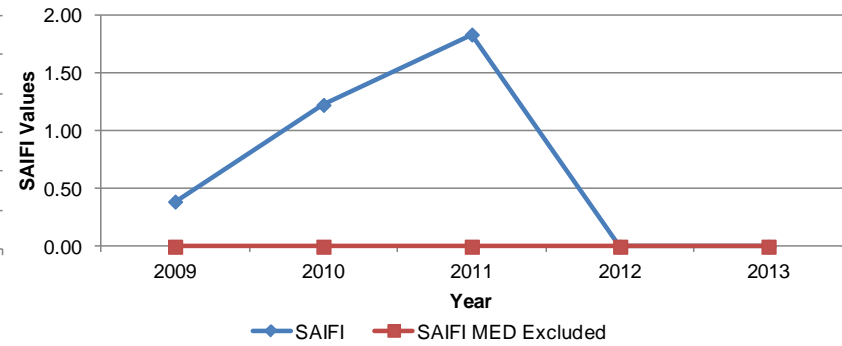
Index Values for JNVY31



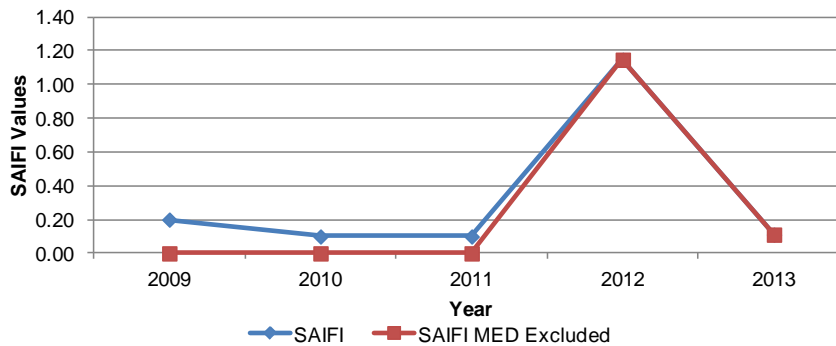
Index Values for LIME11



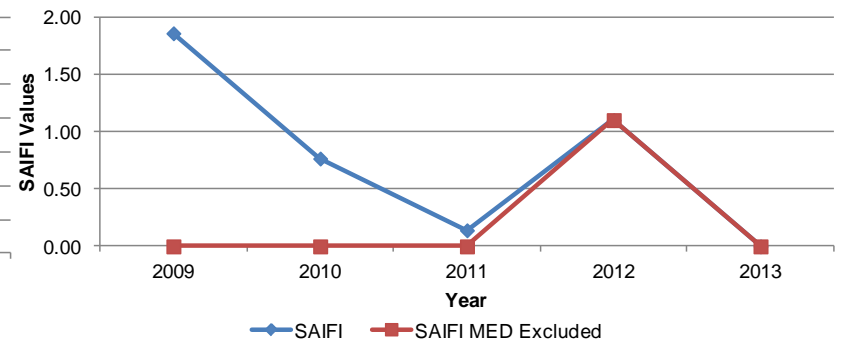
Index Values for LIME12



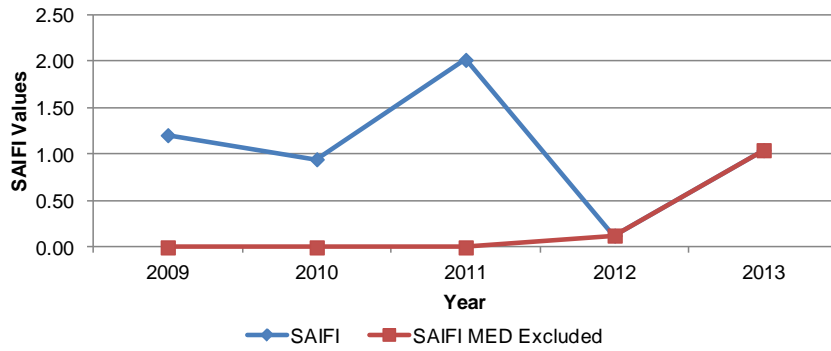
Index Values for MRBT41



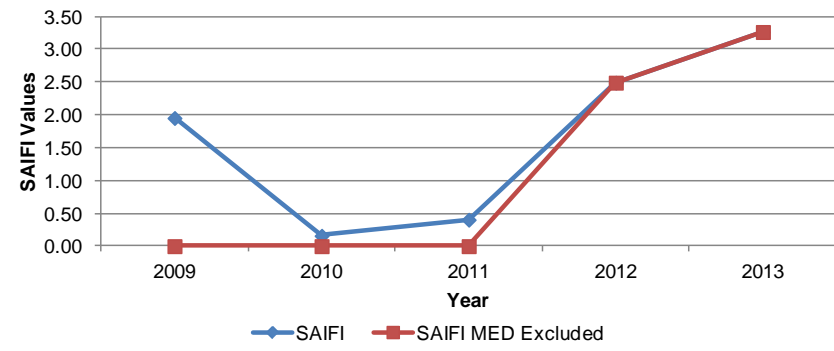
Index Values for MRBT42



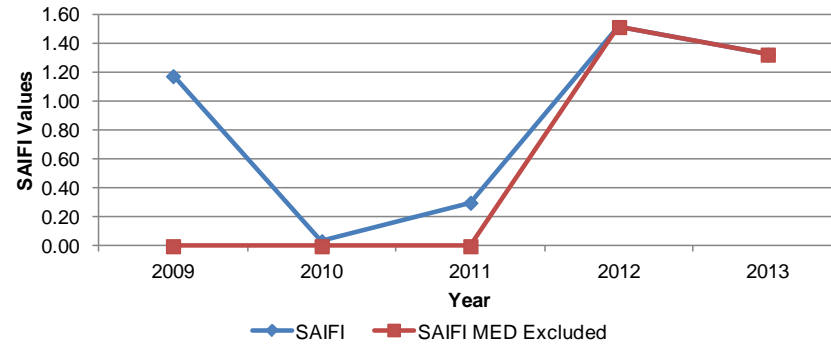
**Index Values for NYSA11**



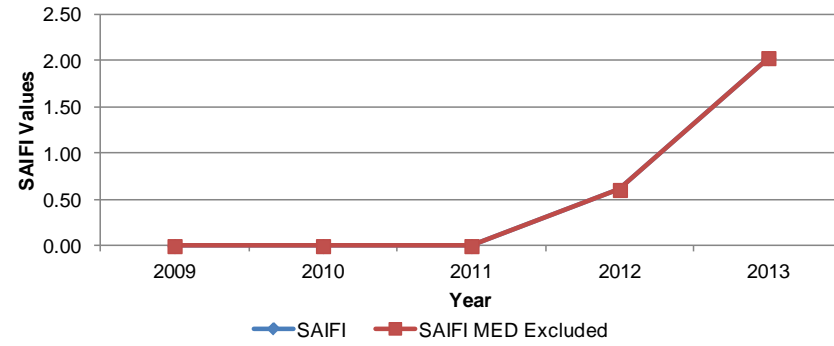
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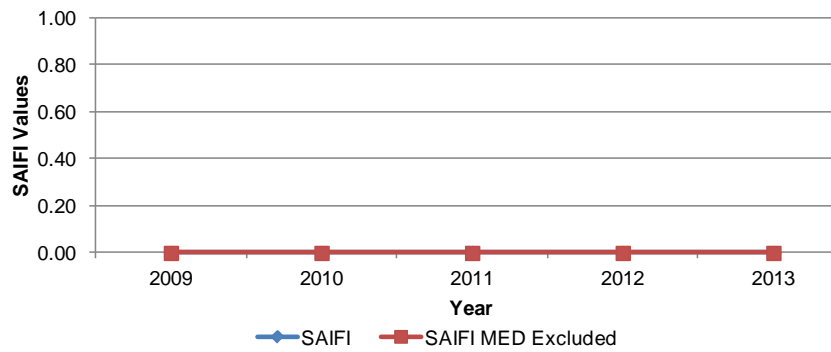
**Index Values for NYSA13**



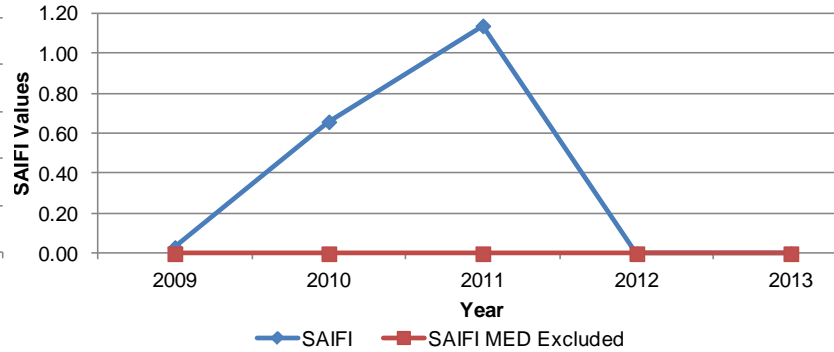
**Index Values for NYSA14**



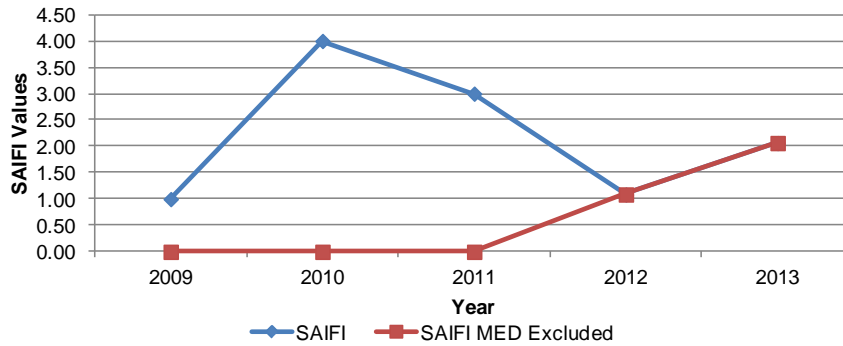
**Index Values for OBPR11**



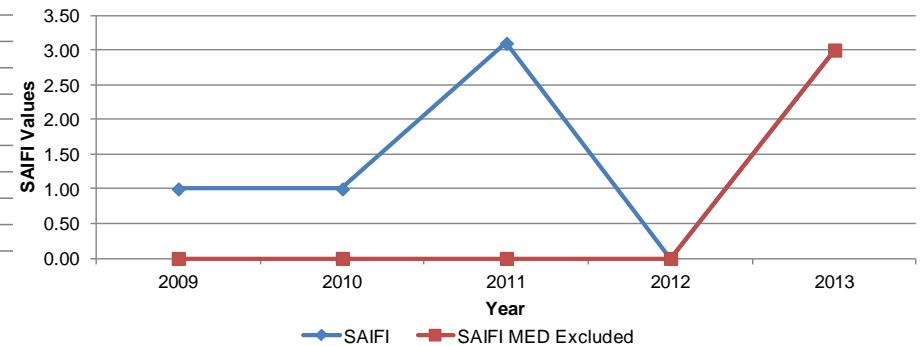
**Index Values for OBPR12**



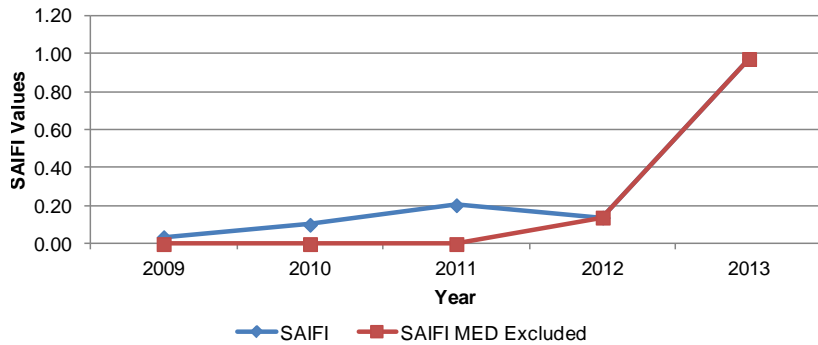
**Index Values for OIDA11**



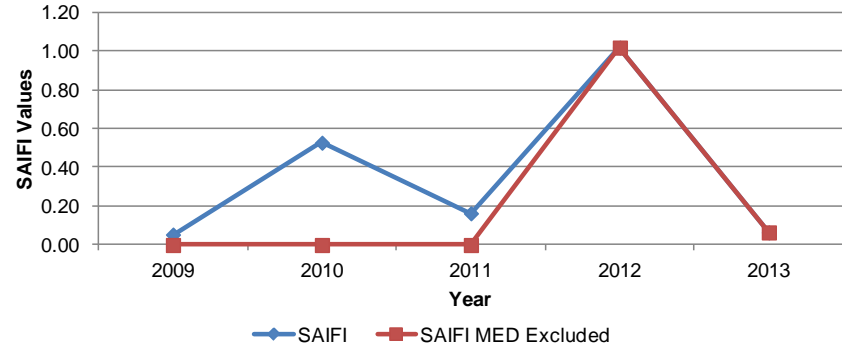
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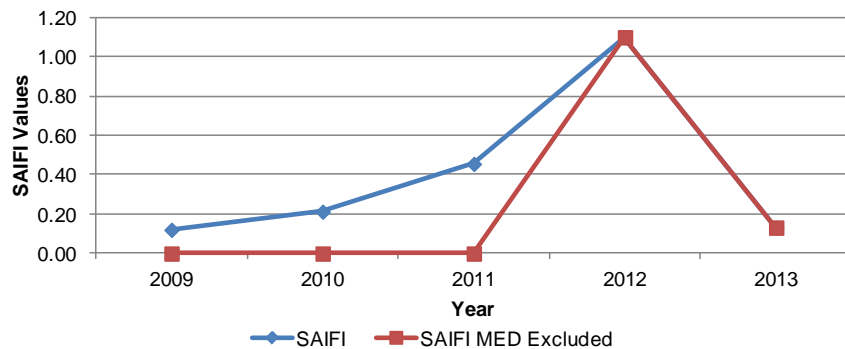
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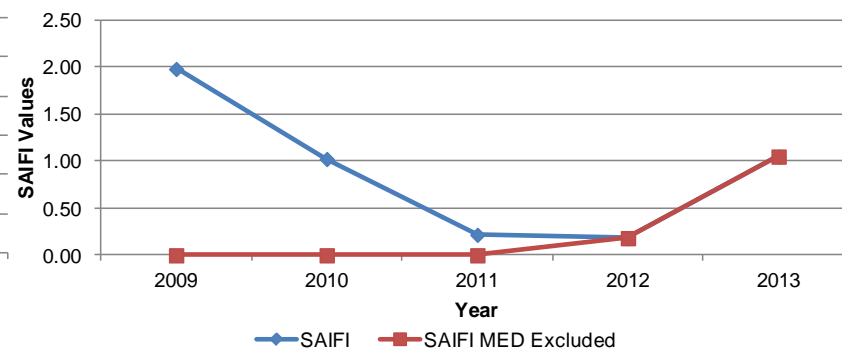
**Index Values for ONTO18**



**Index Values for ONTO19**

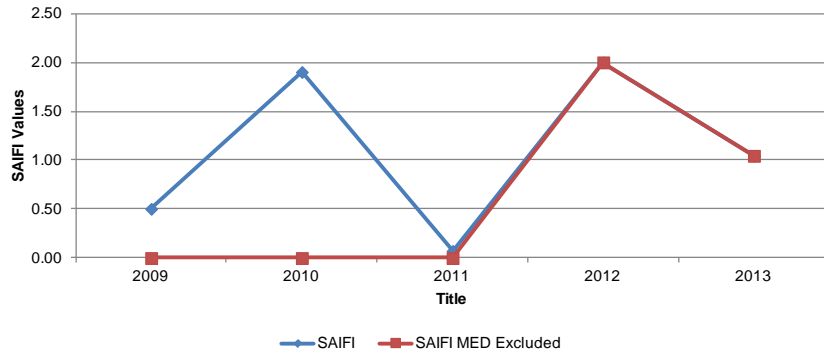


**Index Values for ONTO20**

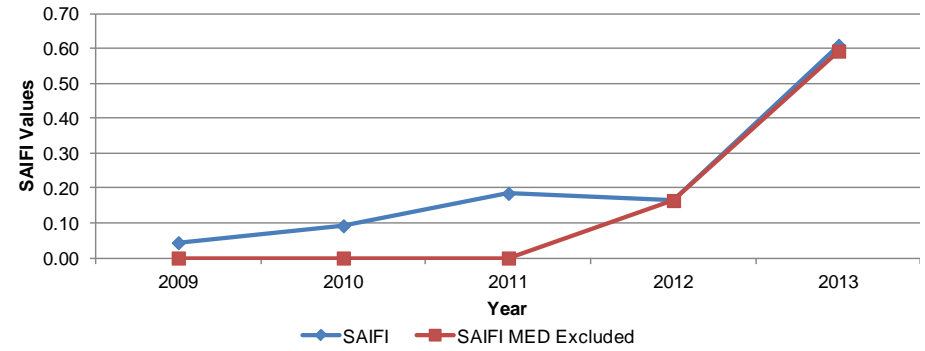




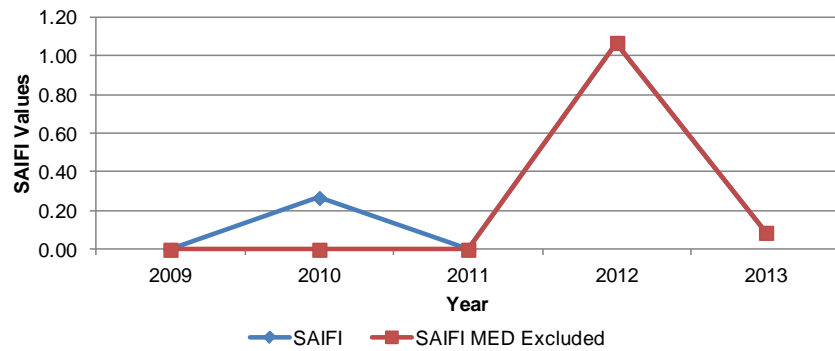
**Index Values for ONTO23**



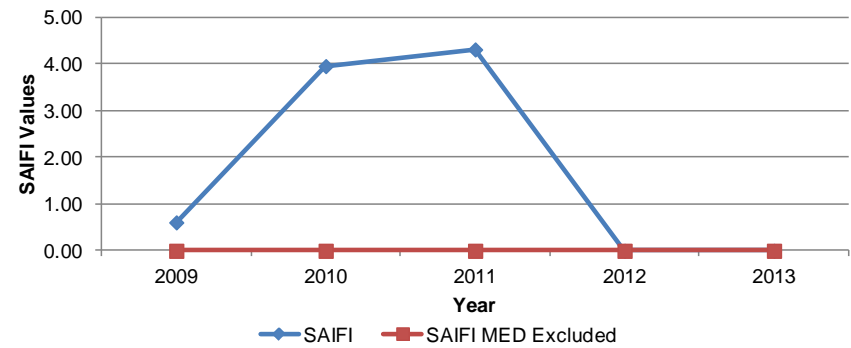
**Index Values for ONTO24**



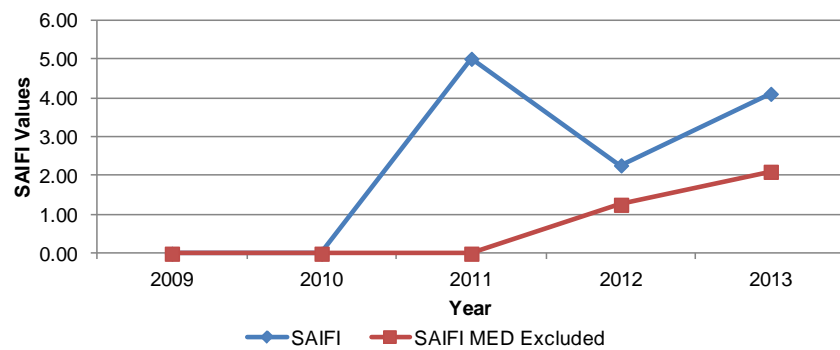
**Index Values for ONTO25**



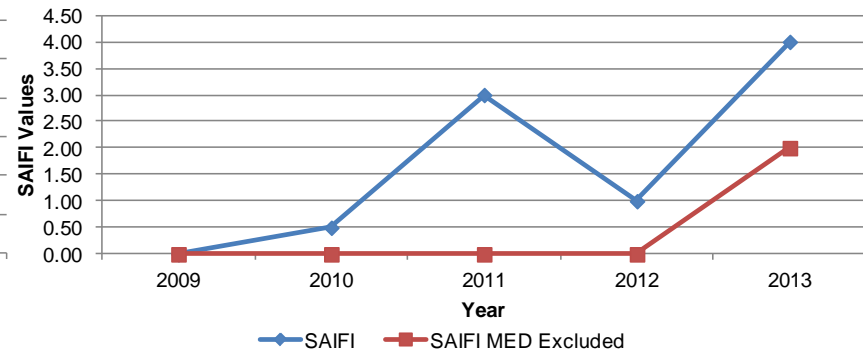
**Index Values for OYDM11**



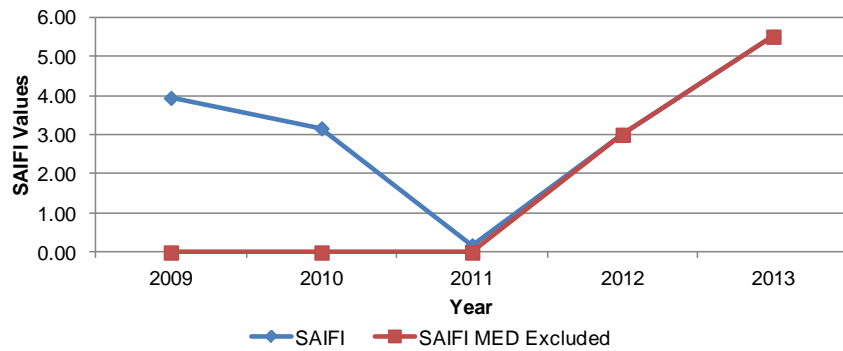
**Index Values for PNCK11**



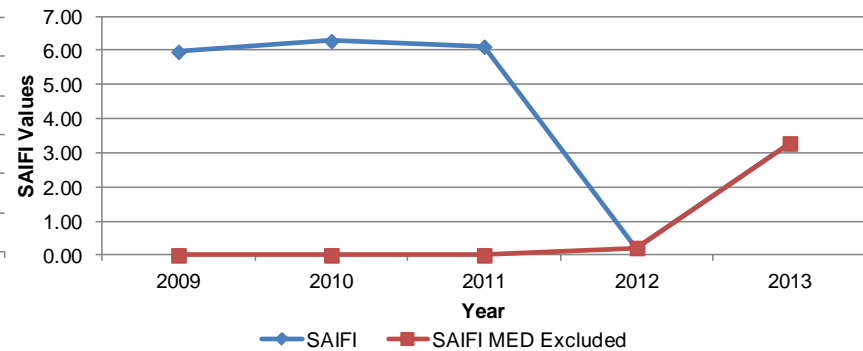
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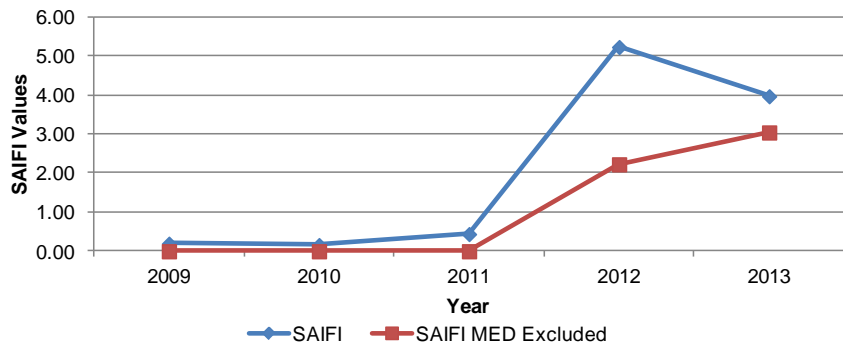
**Index Values for PRMA12**



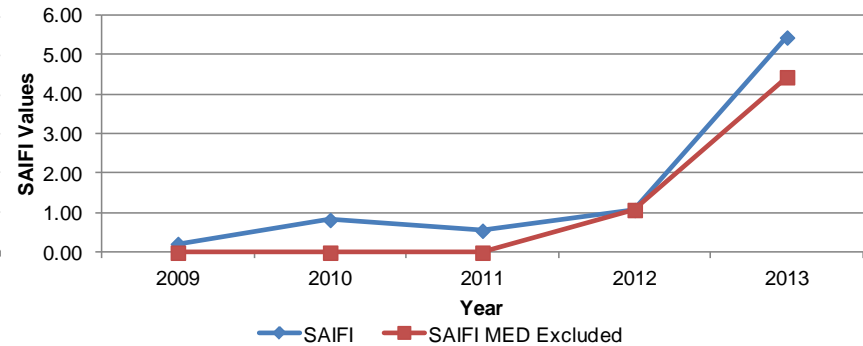
**Index Values for PRMA42**



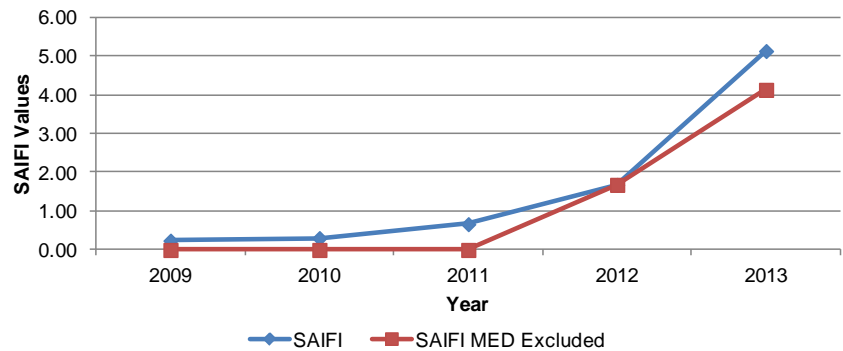
**Index Values for RKVL11**



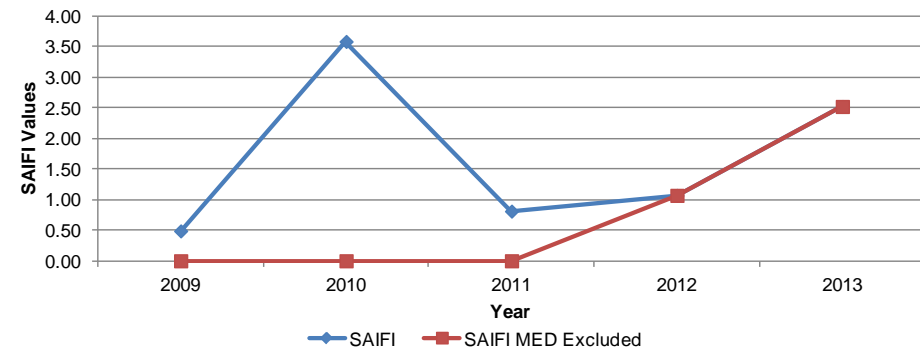
**Index Values for UNTY11**



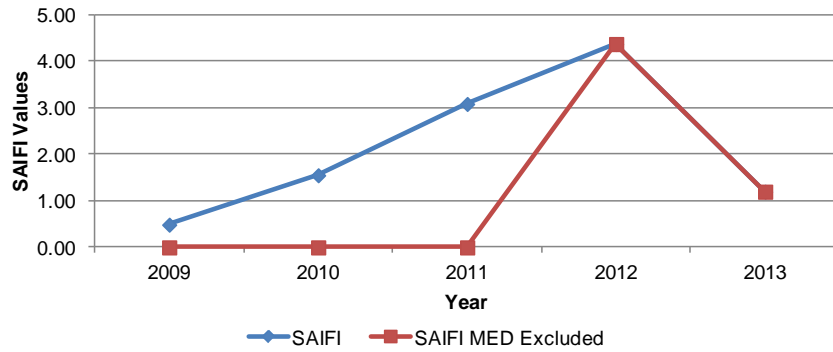
**Index Values for UNTY12**



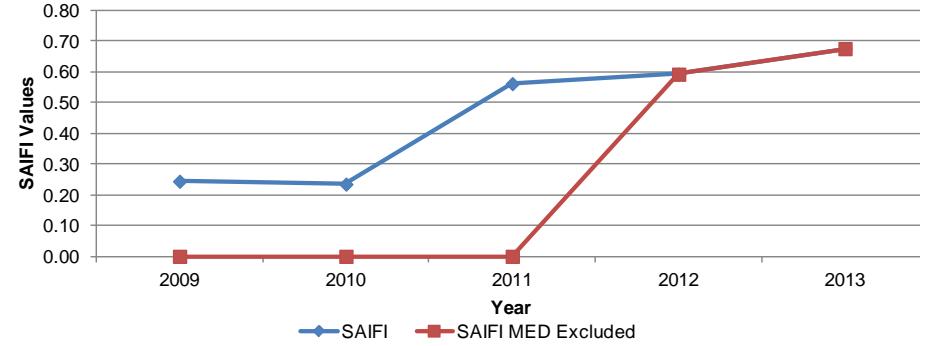
**Index Values for VALE11**



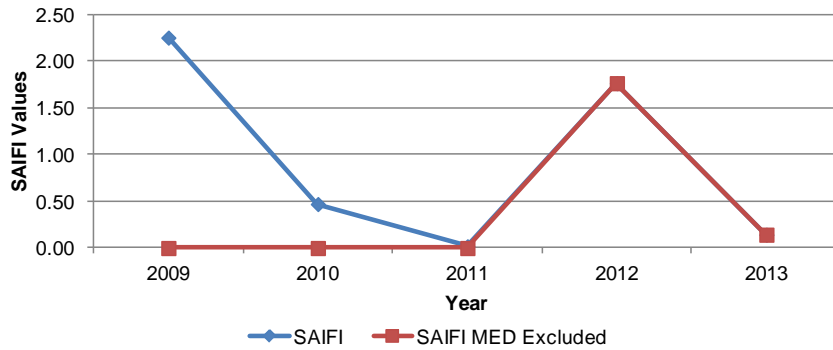
Index Values for VALE13



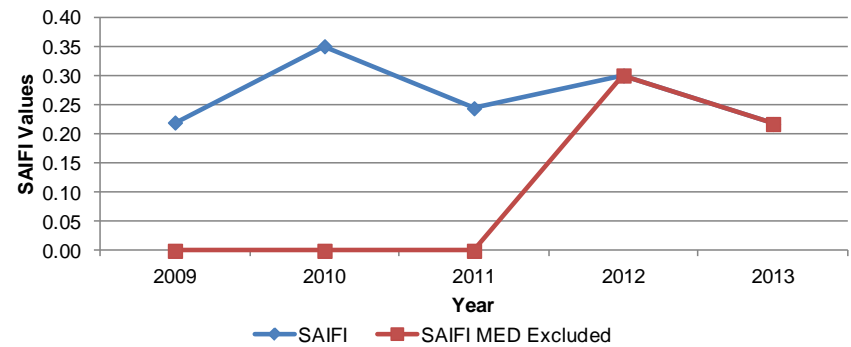
Index Values for VALE14



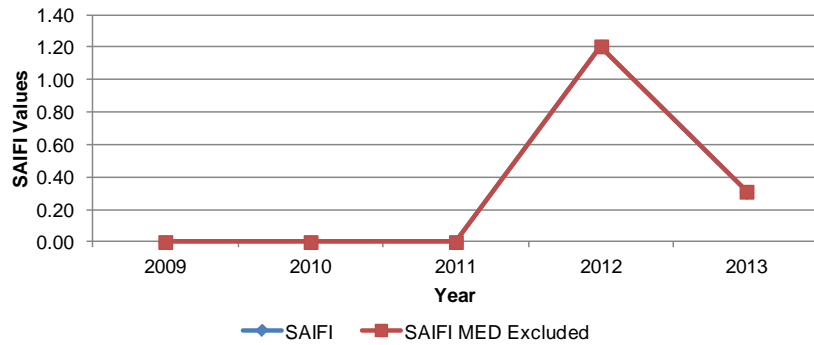
Index Values for VALE15



Index Values for WESR13

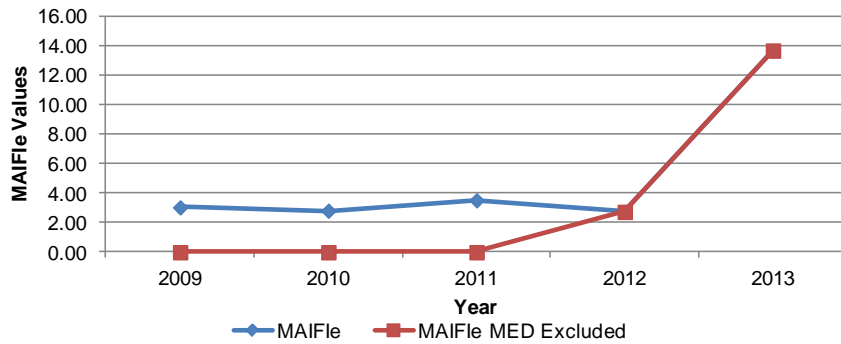


Index Values for WESR14

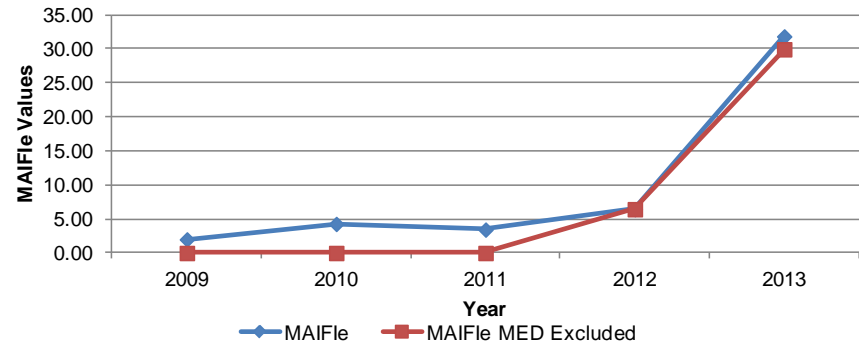


# Circuit MAIFl<sub>E</sub> Values

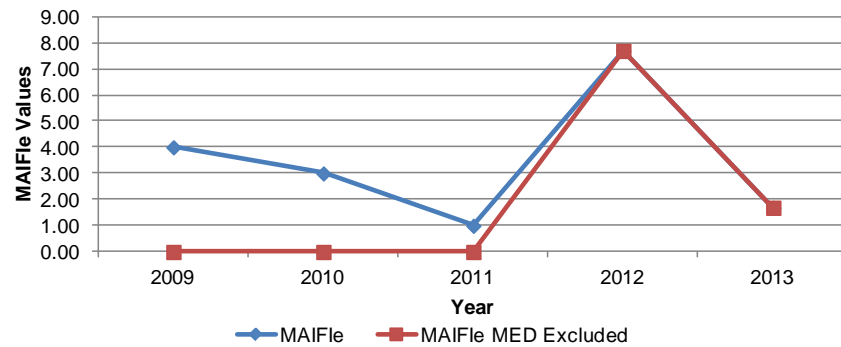
Index Values for ADRN11



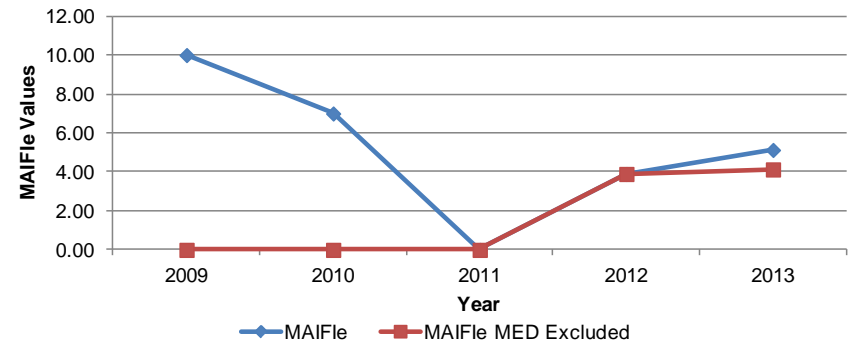
Index Values for ADRN12



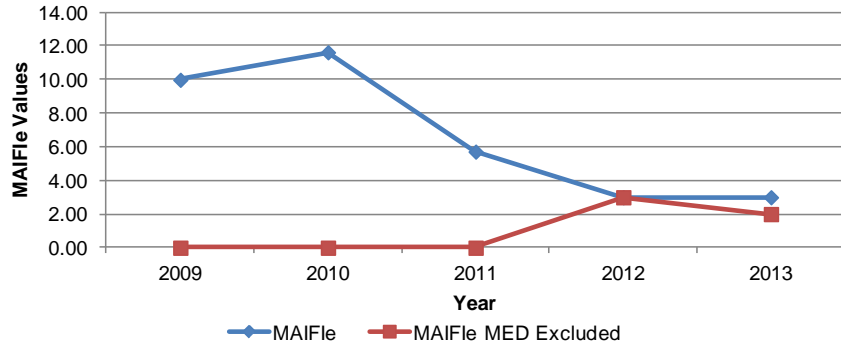
Index Values for CARO11



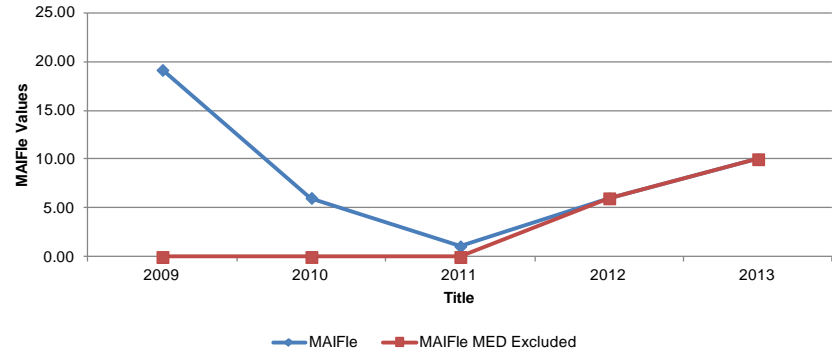
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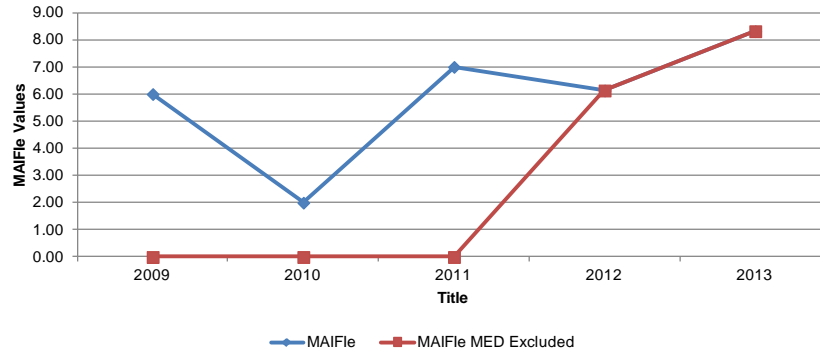
Index Values for CARO13



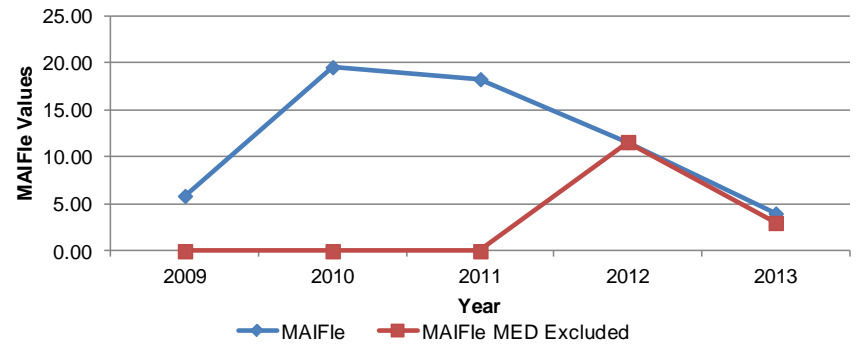
Index Values for CWVY11



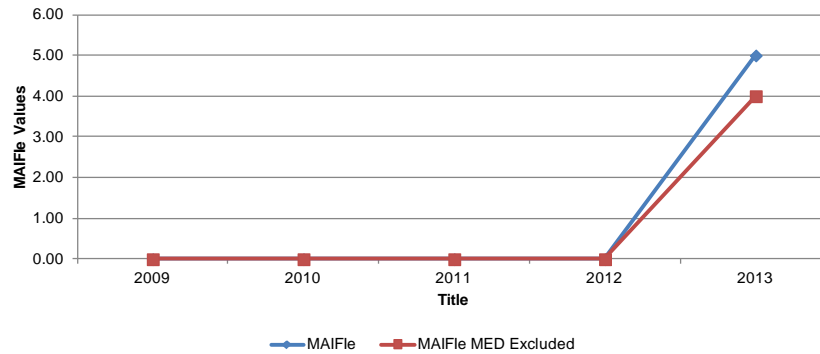
Index Values for CWVY12



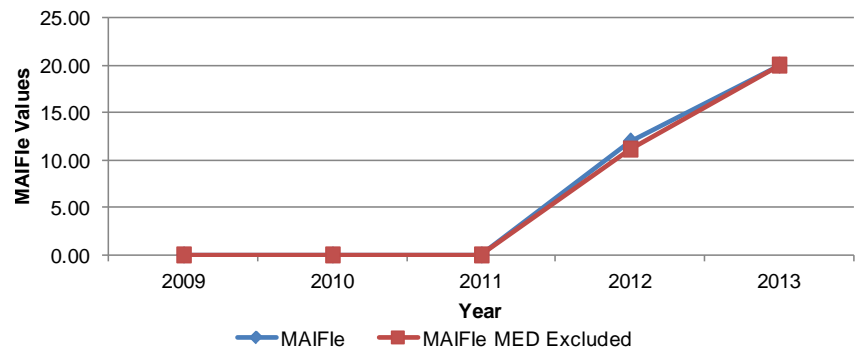
Index Values for DRKE11



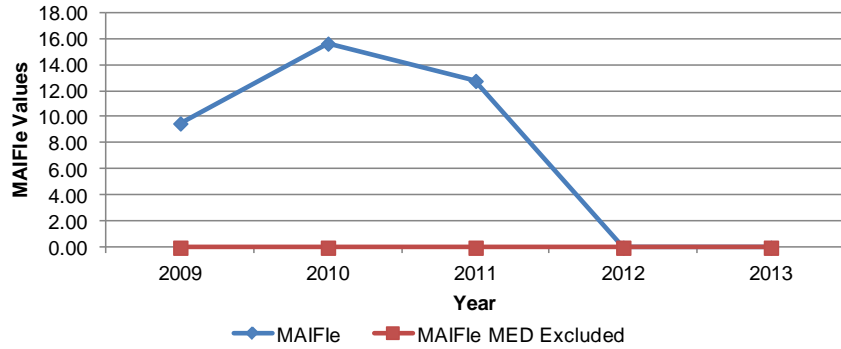
Index Values for DUKE11



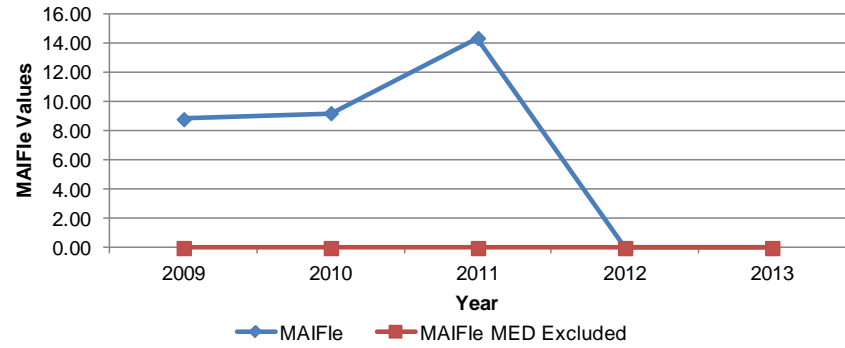
Index Values for DWSY11



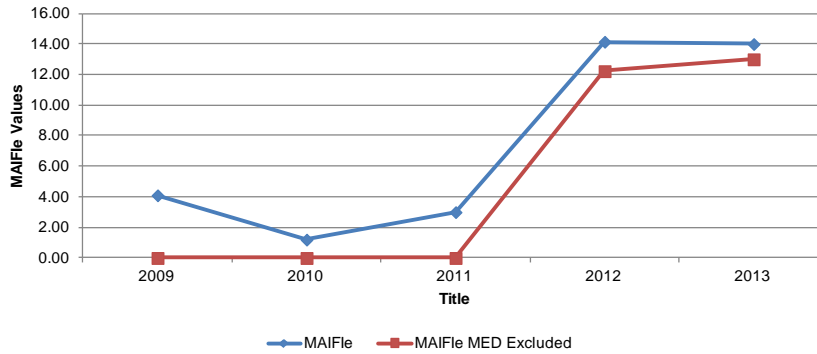
Index Values for ESTN11



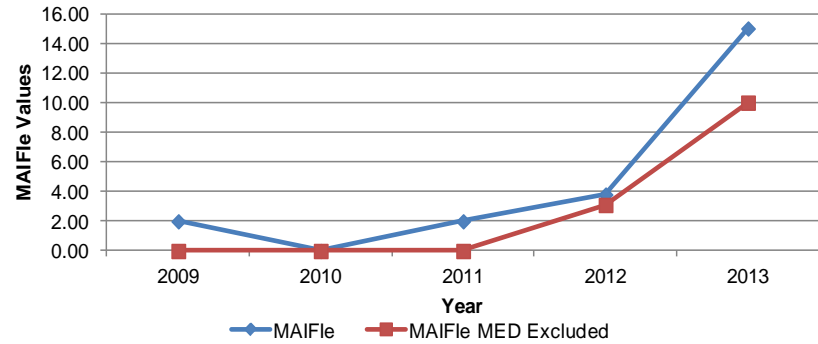
Index Values for HCSU11



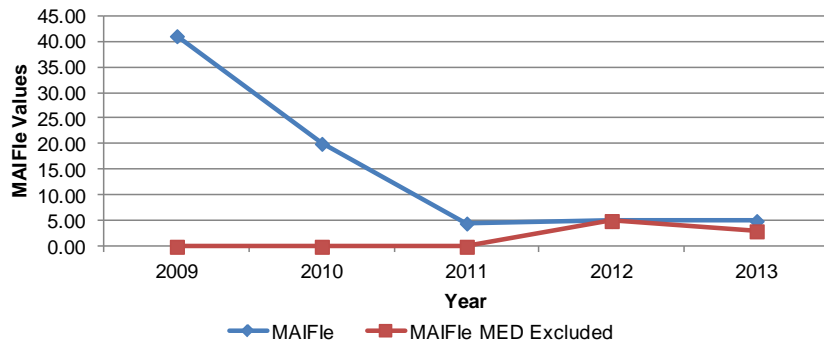
Index Values for HFWY11



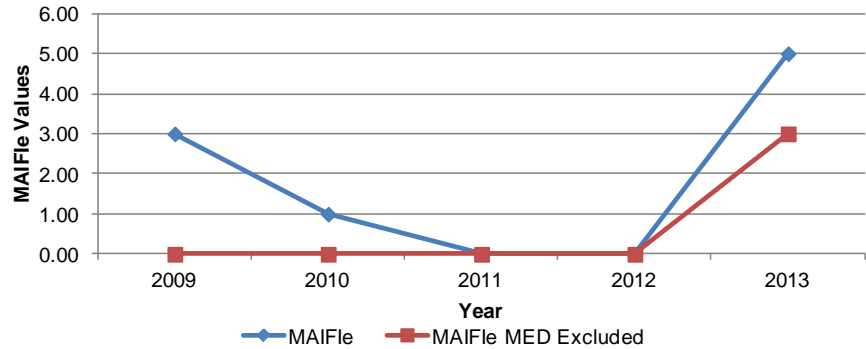
Index Values for HFWY12



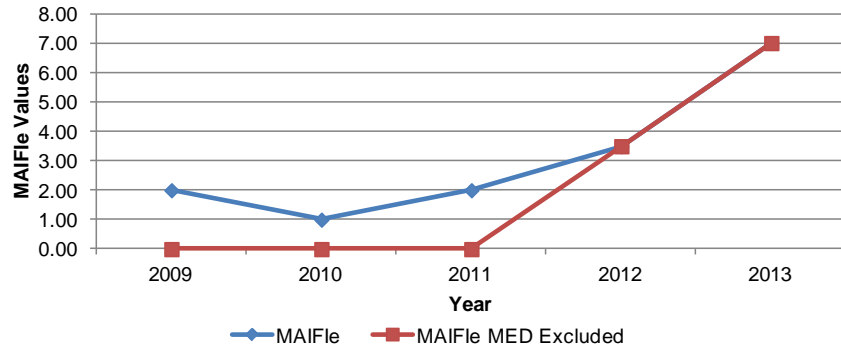
Index Values for HGTN11



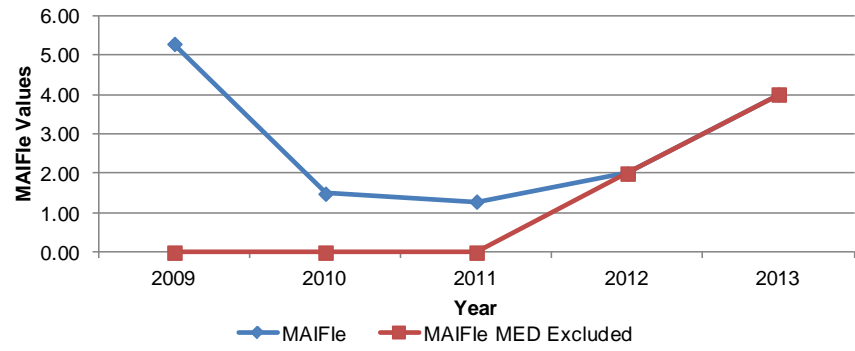
Index Values for HGTN12



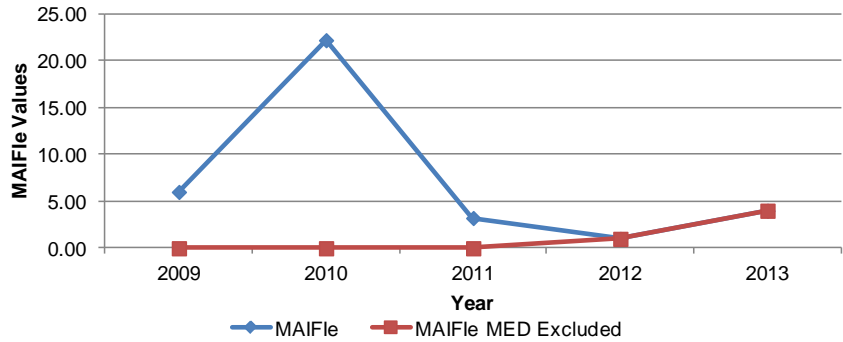
**Index Values for HMDL12**



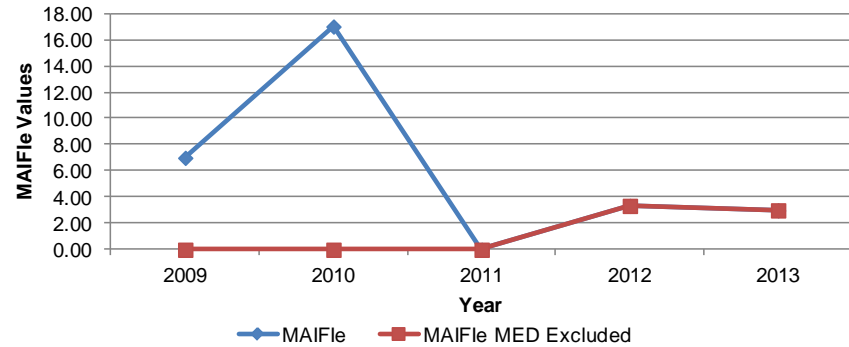
**Index Values for HOLY11**



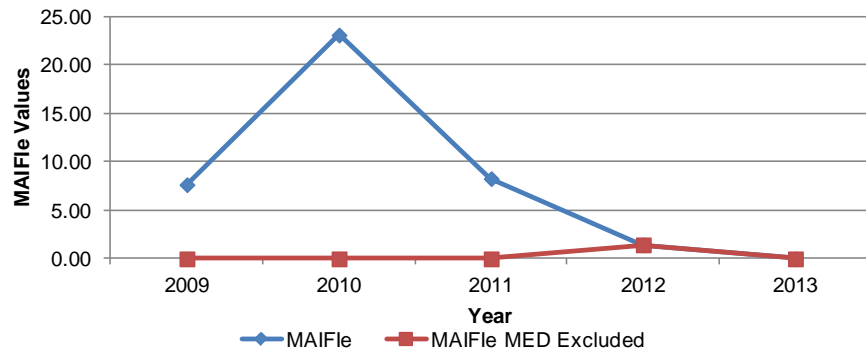
**Index Values for HOLY12**



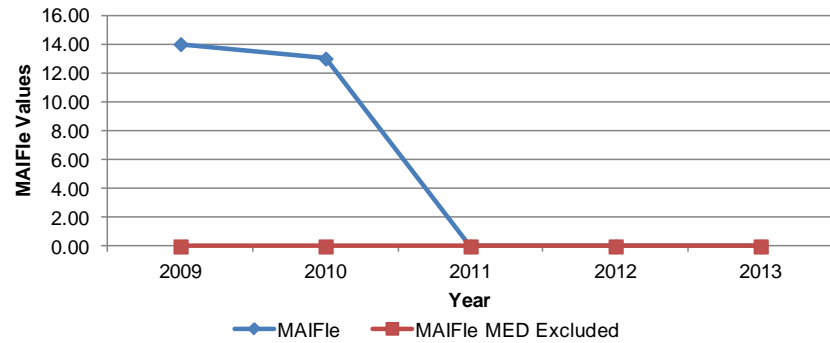
**Index Values for HOLY13**



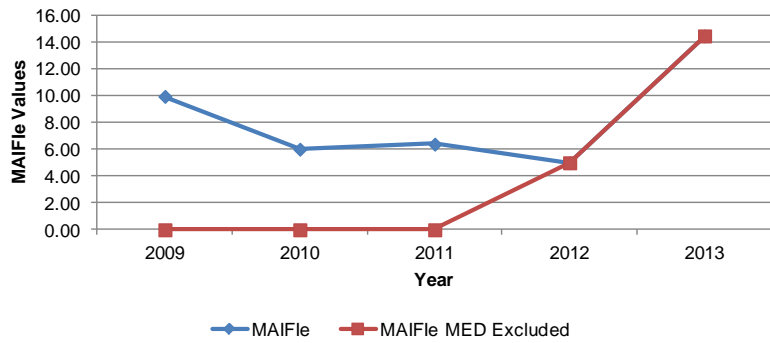
**Index Values for HOPE11**



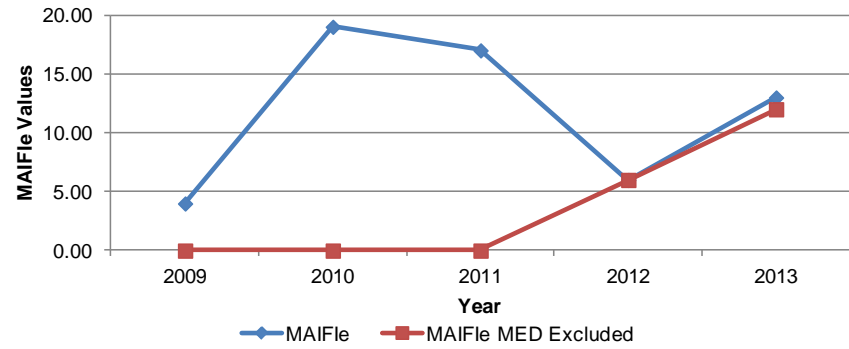
**Index Values for HRPR11**



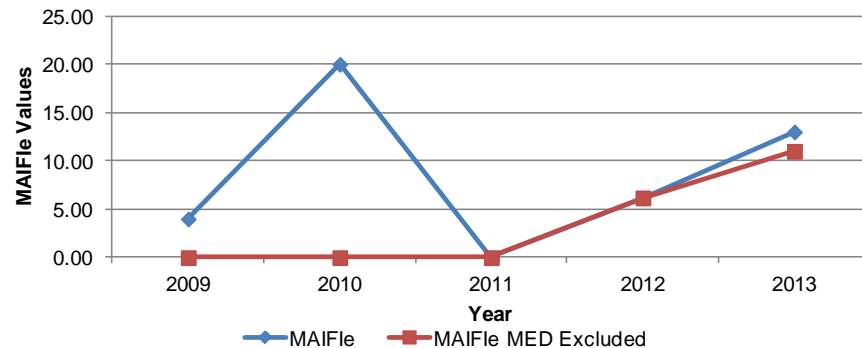
Index Values for HRPR12



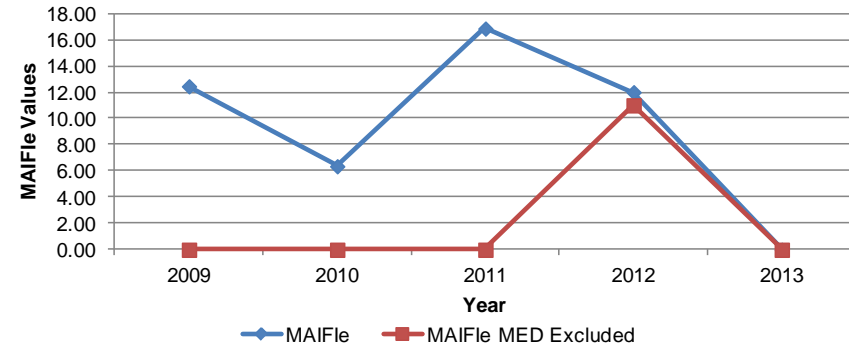
Index Values for JMSN11



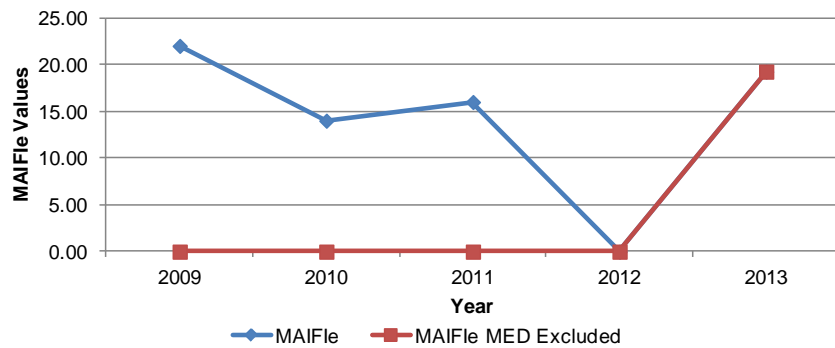
Index Values for JMSN12



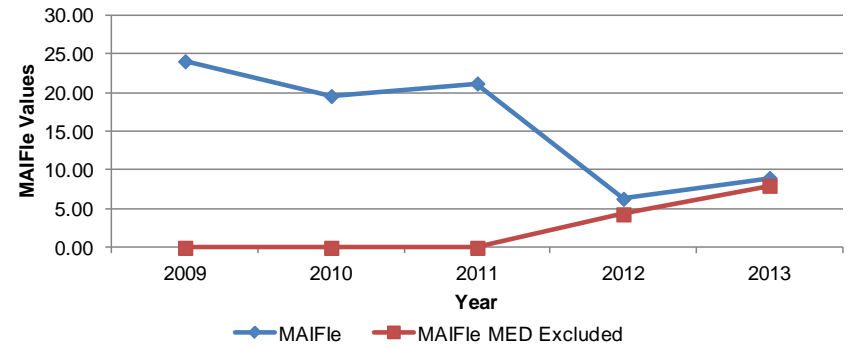
Index Values for JNTA11



Index Values for JNTA12

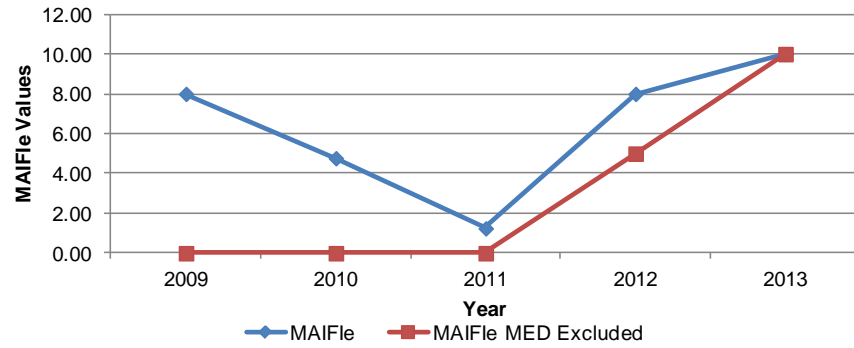


Index Values for JNVY11

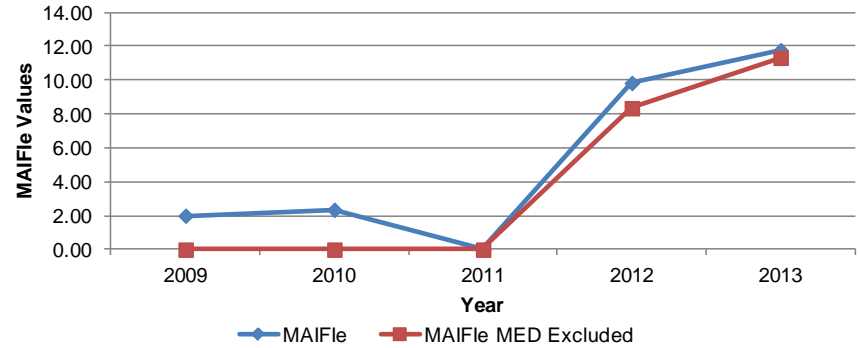




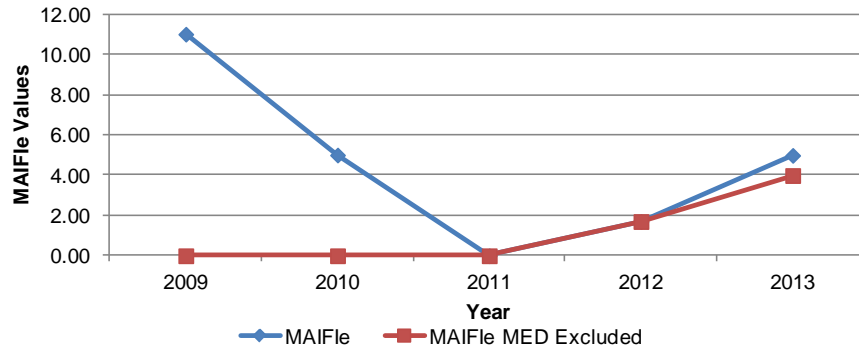
**Index Values for JNVY12**



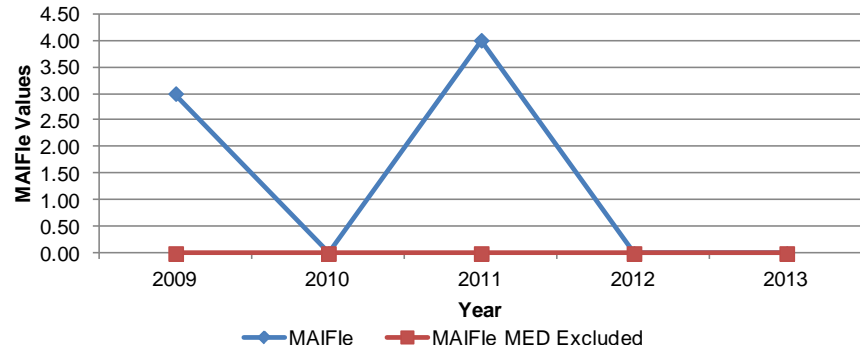
**Index Values for JNVY31**



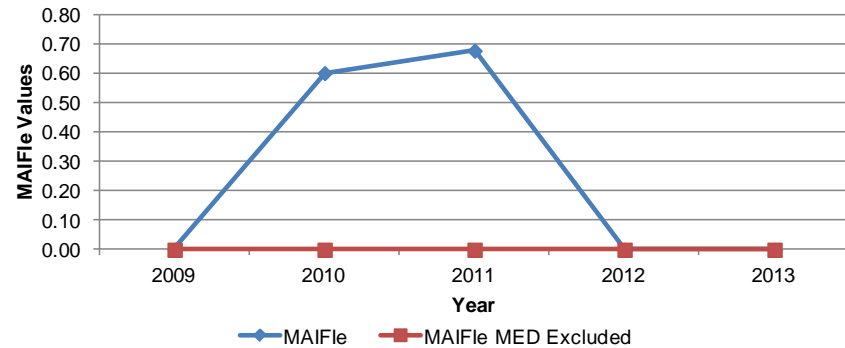
**Index Values for LIME11**



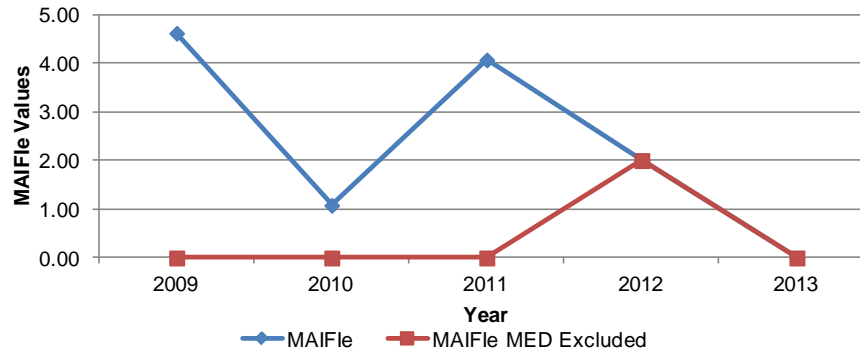
**Index Values for LIME12**



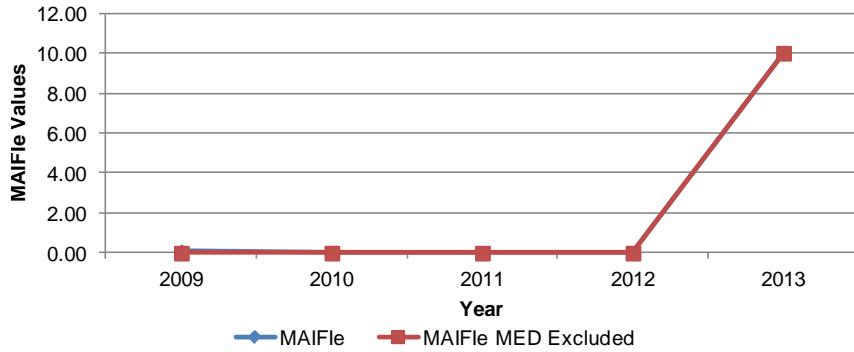
**Index Values for MRBT41**



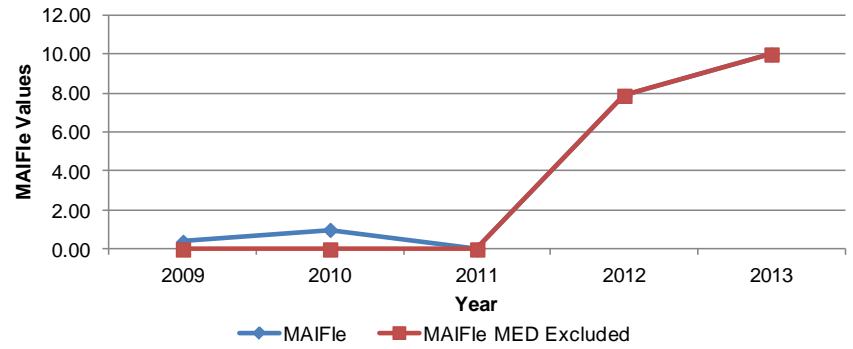
**Index Values for MRBT42**



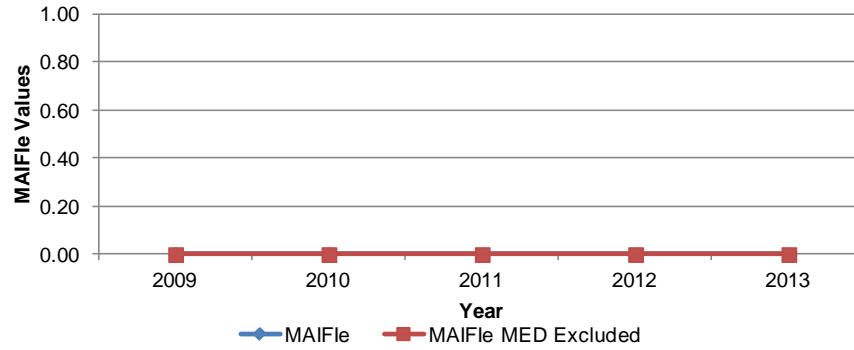
**Index Values for NYSA11**



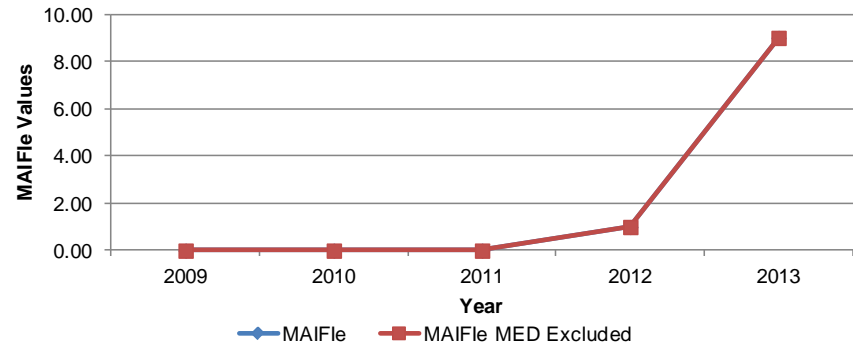
**Index Values for NYSA12**



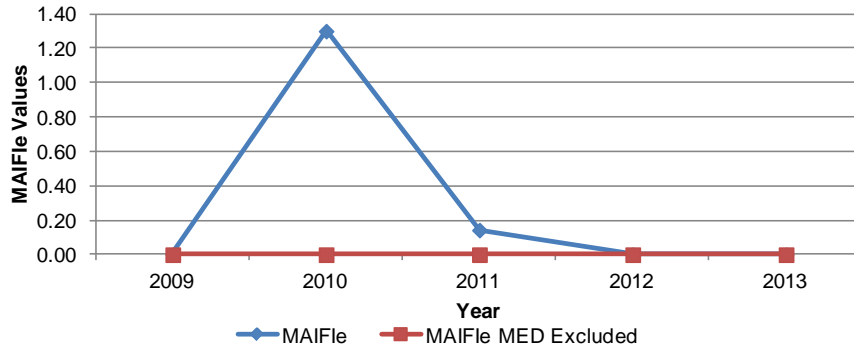
**Index Values for NYSA13**



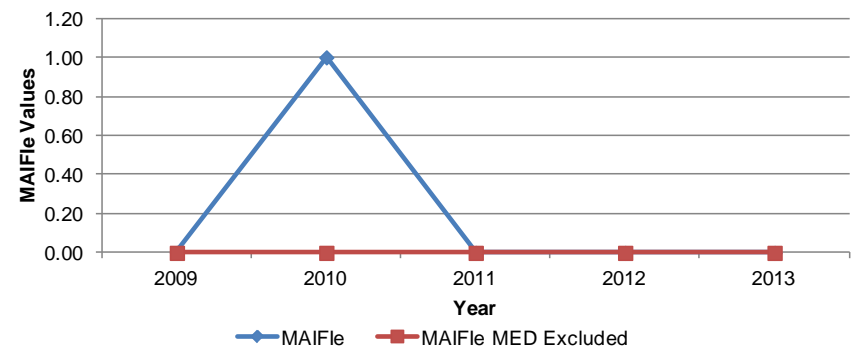
**Index Values for NYSA14**



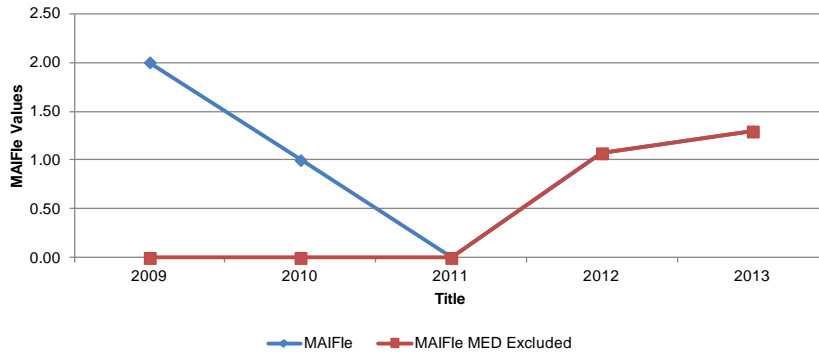
**Index Values for OBPR11**



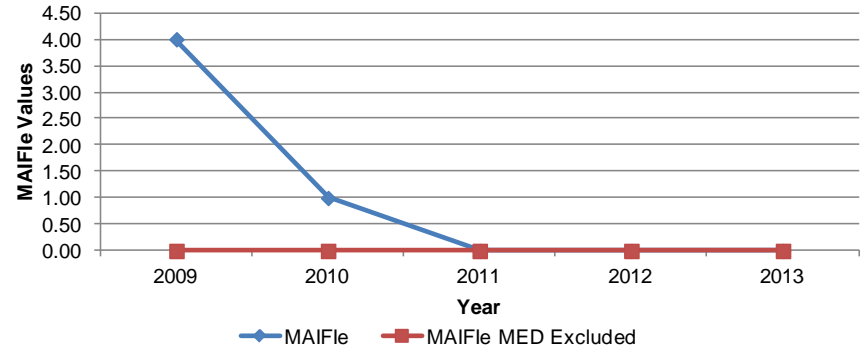
**Index Values for OBPR12**



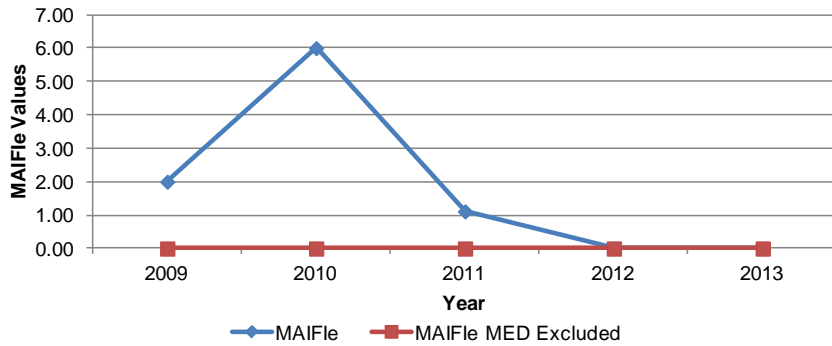
**Index Values for OIDA11**



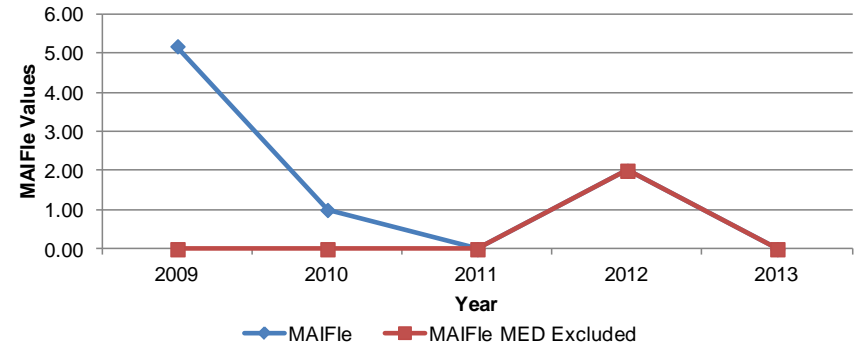
**Index Values for OIDA12**



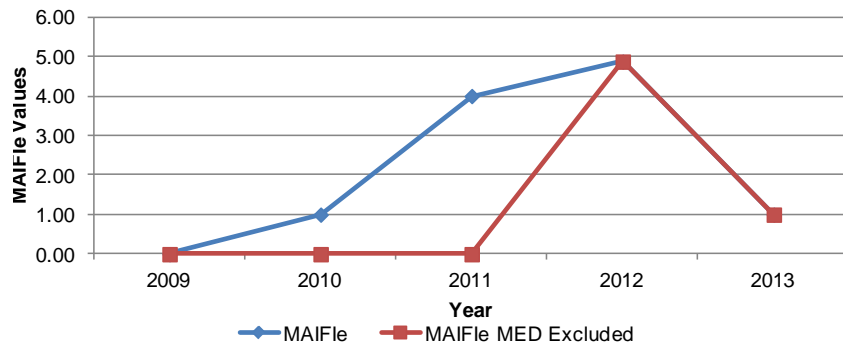
**Index Values for ONTO14**



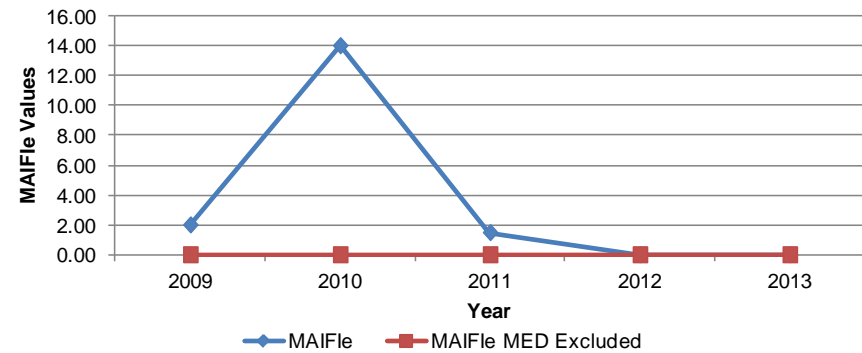
**Index Values for ONTO18**



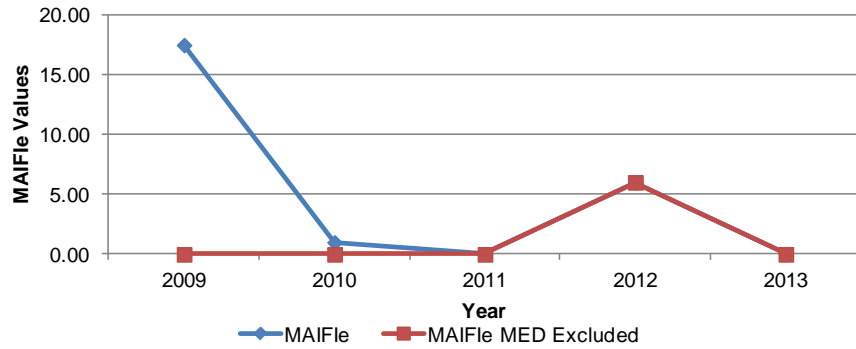
**Index Values for ONTO19**



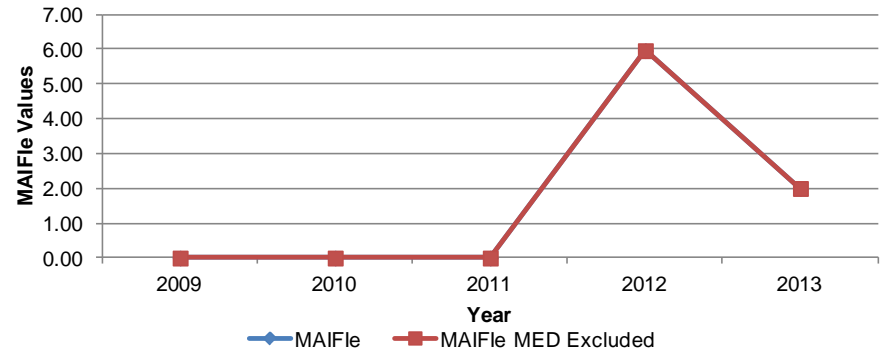
**Index Values for ONTO20**



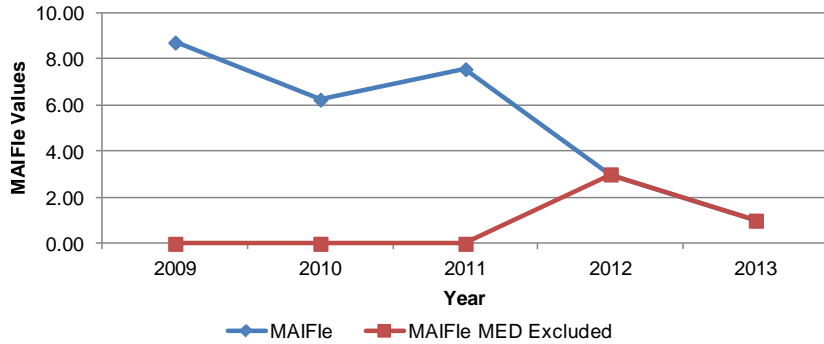
Index Values for ONTO23



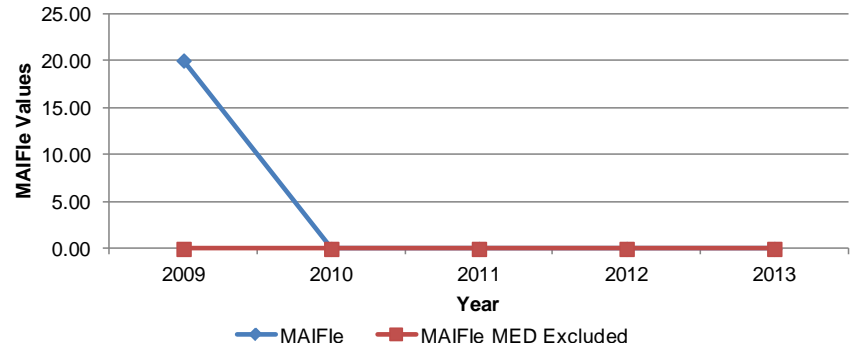
Index Values for ONTO24



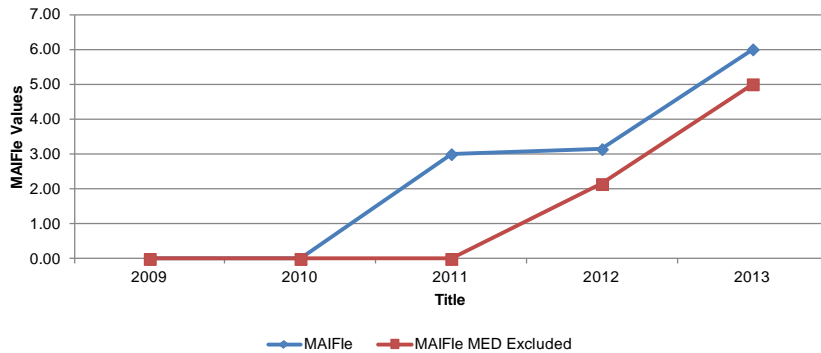
Index Values for ONTO25



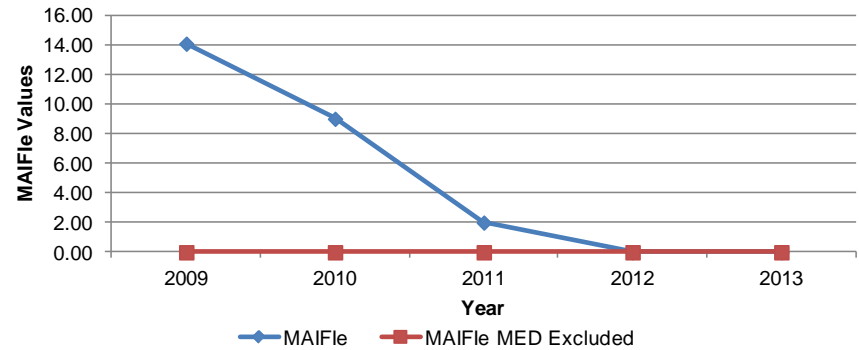
Index Values for OYDM11



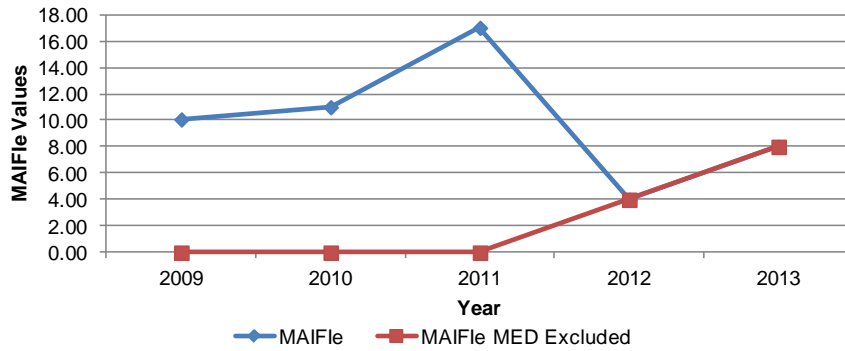
Index Values for PNCK11



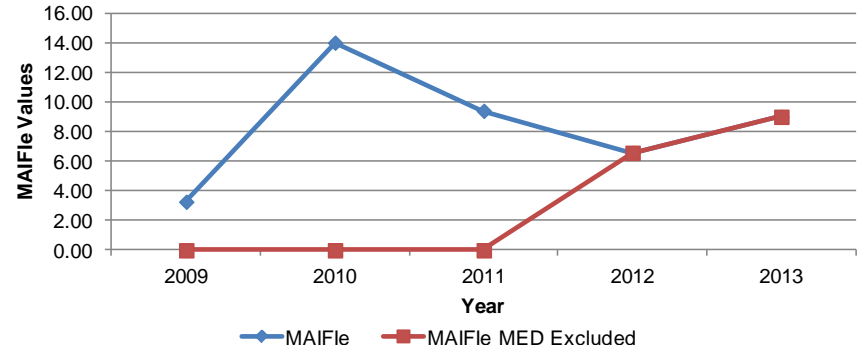
Index Values for PNCK12



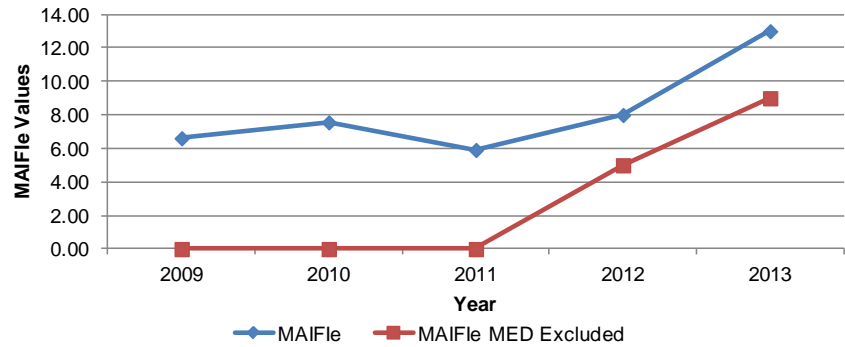
**Index Values for PRMA12**



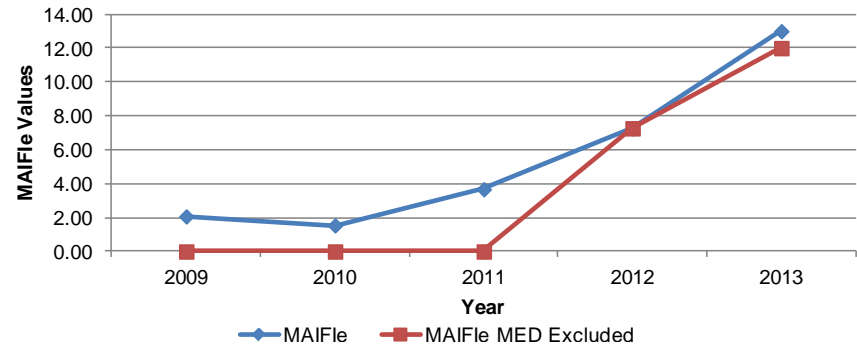
**Index Values for PRMA42**



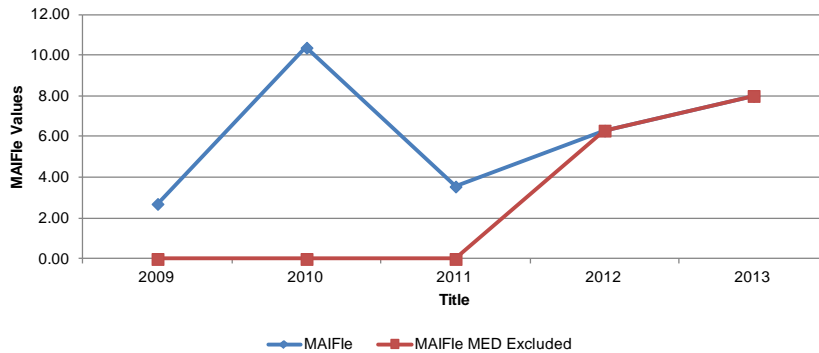
**Index Values for RKVL11**



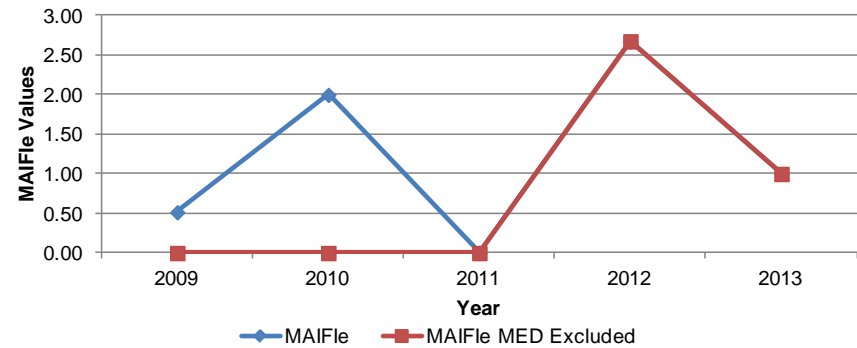
**Index Values for UNTY11**



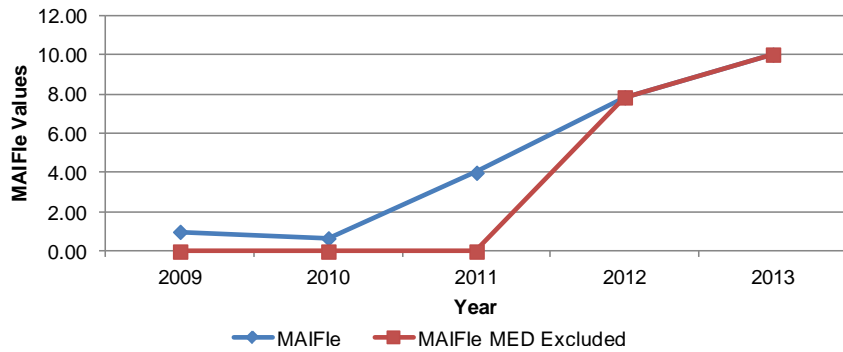
**Index Values for UNTY12**



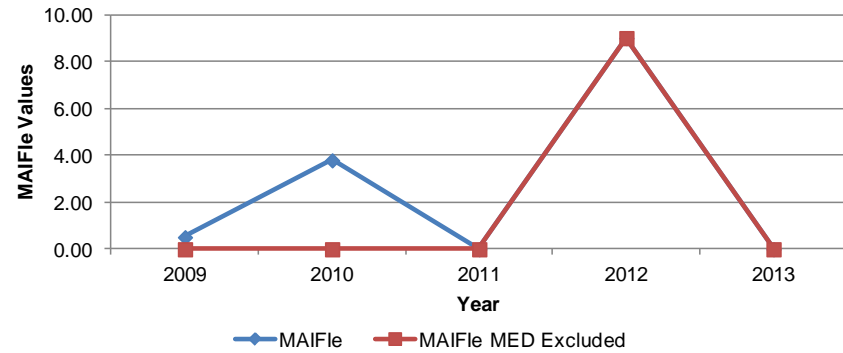
**Index Values for VALE11**



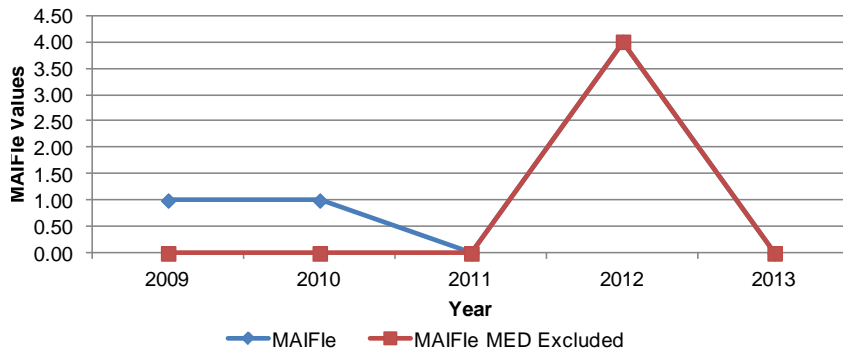
**Index Values for VALE13**



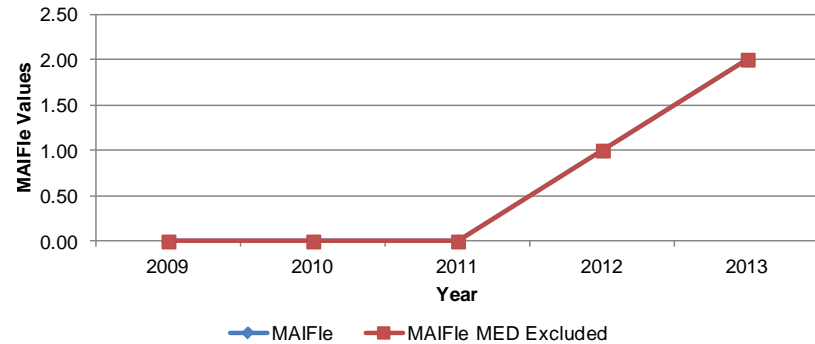
**Index Values for VALE14**



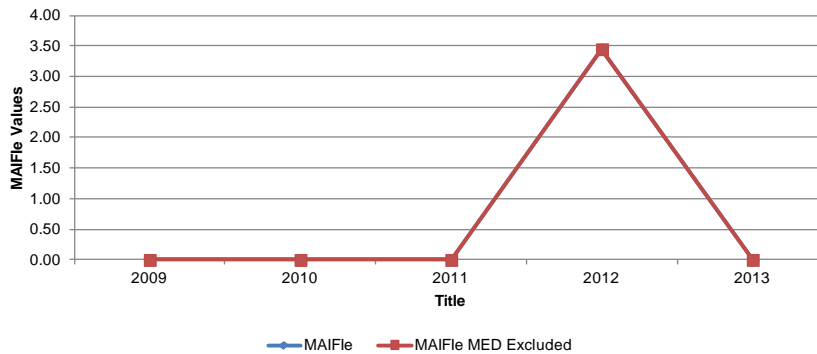
**Index Values for VALE15**



**Index Values for WESR13**



**Index Values for WESR14**



**Table 5**

Five years of sustained interruption causes

Cause	Number of Sustained Interruptions					Percent of Total Sustained Interruptions				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Adverse environment	12	99	161	104	107	2.09	11.47	22.24	15.23	12.23
Adverse weather	40	0	0	0	0	6.96	0.00	0.00	0.00	0.00
Customer equipment*	9	7	8	35	3	1.57	0.81	1.10	5.12	0.34
Equipment failure	110	216	162	173	226	19.13	25.03	22.38	25.33	25.83
Foreign interference	99	63	11	19	14	17.22	7.30	1.52	2.78	1.60
Human element	7	20	12	15	21	1.22	2.32	1.66	2.20	2.40
Lightning	19	16	15	15	104	3.30	1.85	2.07	2.20	11.89
Loss of supply	19	26	31	25	60	3.30	3.01	4.28	3.66	6.86
Major events**	0	0	0	2	5	0.00	0.00	0.00	0.29	0.57
Scheduled outages	64	155	149	136	192	11.13	17.96	20.58	19.91	21.94
Tree/Vegetation	25	49	45	59	63	4.35	5.68	6.22	8.64	7.20
Unknown	180	219	138	137	88	31.30	25.38	19.06	20.06	10.06
<b>Total</b>	<b>575</b>	<b>863</b>	<b>724</b>	<b>683</b>	<b>875</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

\*not included in calculations

\*\*not included in calculations, see MED summary

**Table 6**  
2013 sustained interruption cause ranking

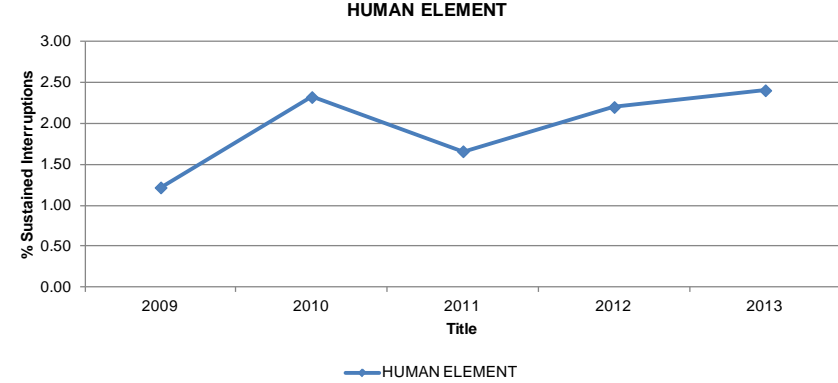
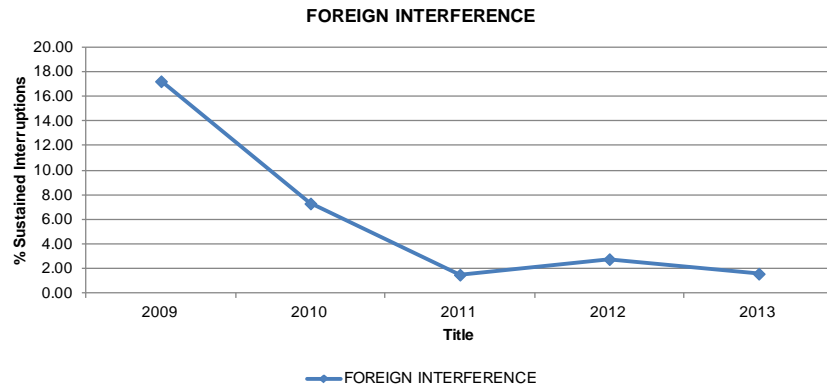
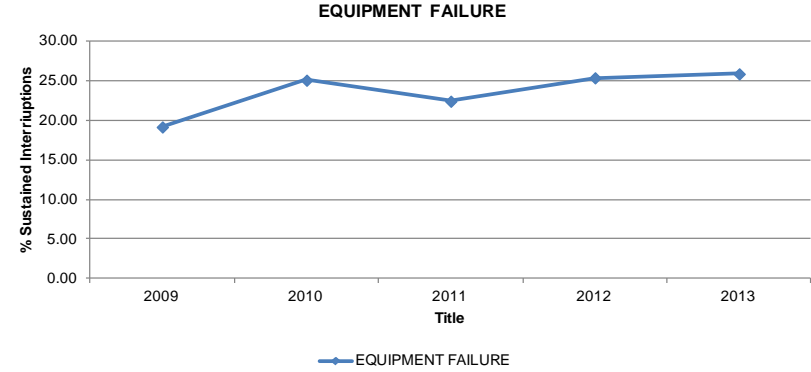
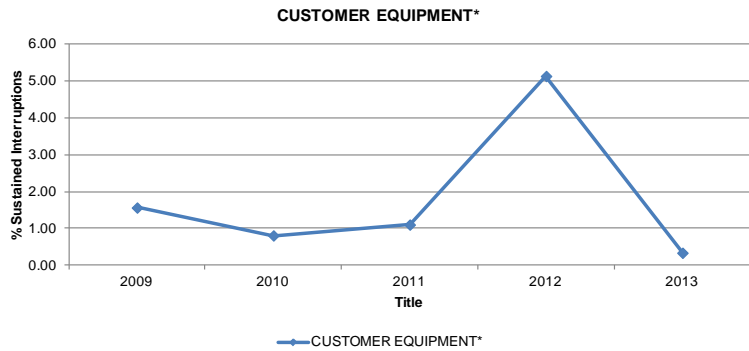
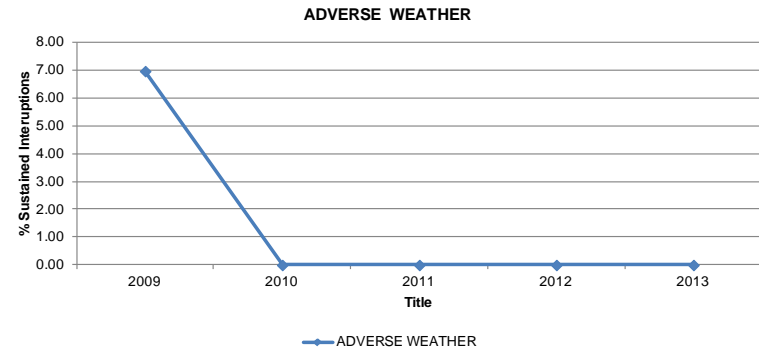
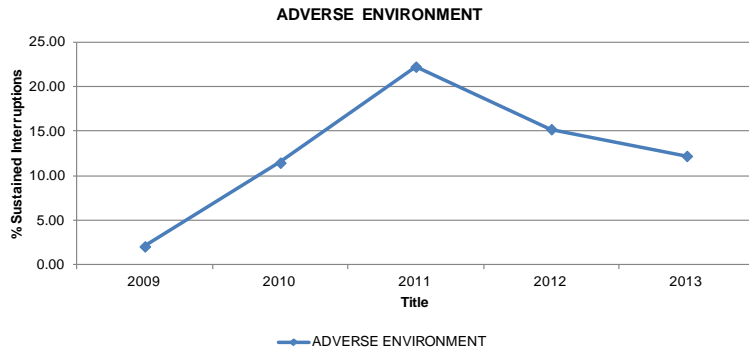
<b>Cause</b>	<b>Occurrences</b>	<b>Customer Hours Out</b>	<b>Occurrences Ranking</b>	<b>Hours Out Ranking</b>
Equipment Failure	226	40229.70	1	1
Scheduled Outages	192	15531.85	2	4
Adverse Environment	107	8938.72	3	5
Lightning	104	18462.63	4	3
Unknown	88	4594.27	5	6
Tree/Vegetation	63	3975.36	6	7
Loss of Supply	60	32510.14	7	2
Human Element	21	2704.79	8	8
Foreign Interference	14	1367.04	9	9
Major Events**	5	0.00	0	12
Customer Equipment*	3	6.06	10	10
Adverse Weather	0	0.00	0	11
<b>Total</b>	<b>875</b>	<b>128314.50</b>		

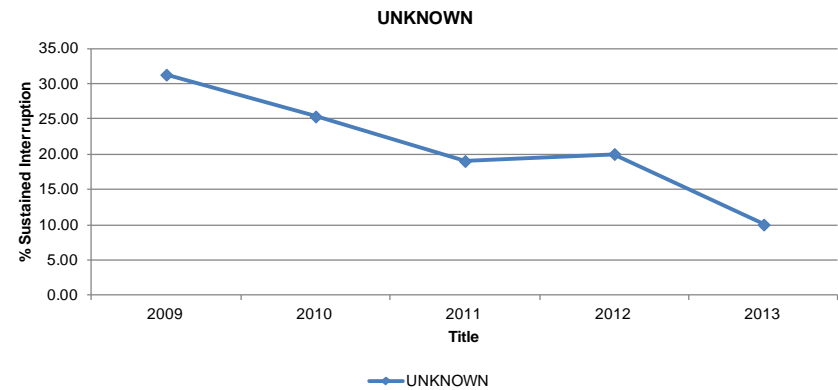
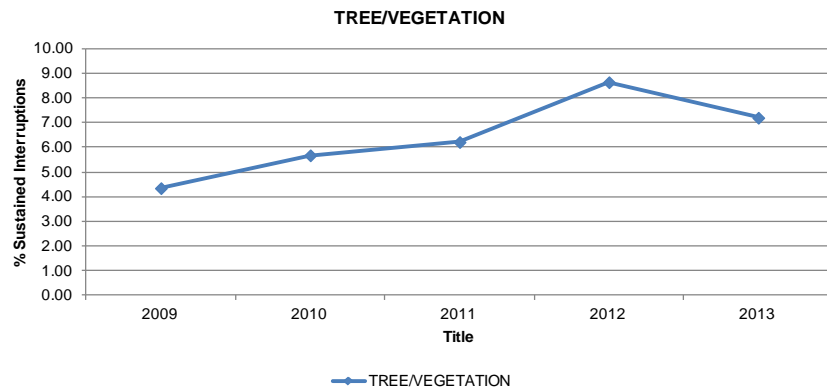
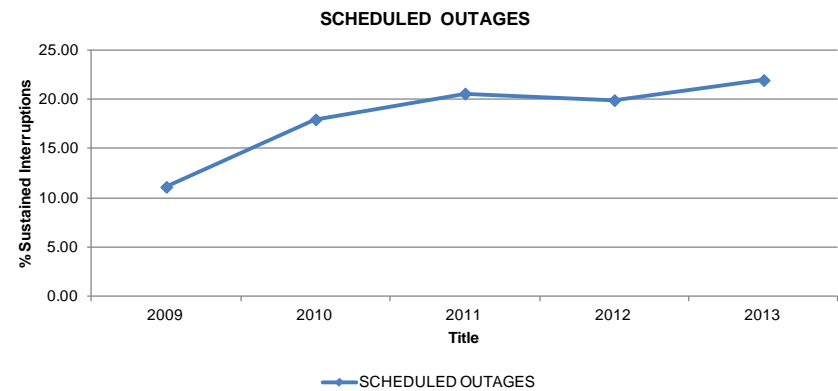
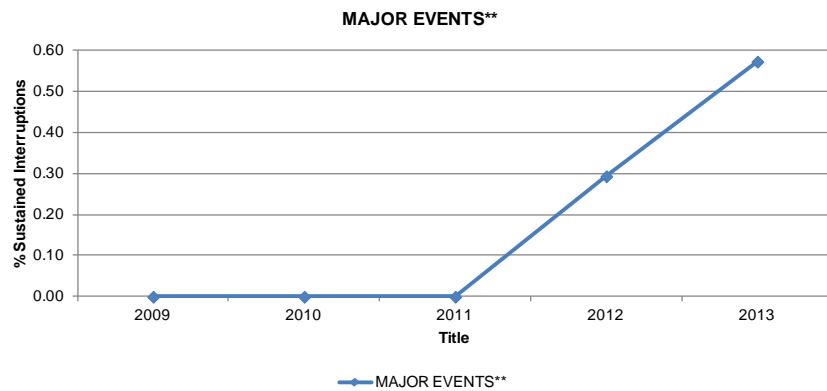
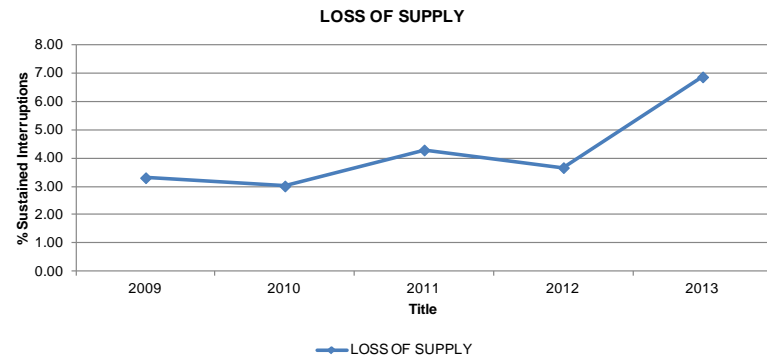
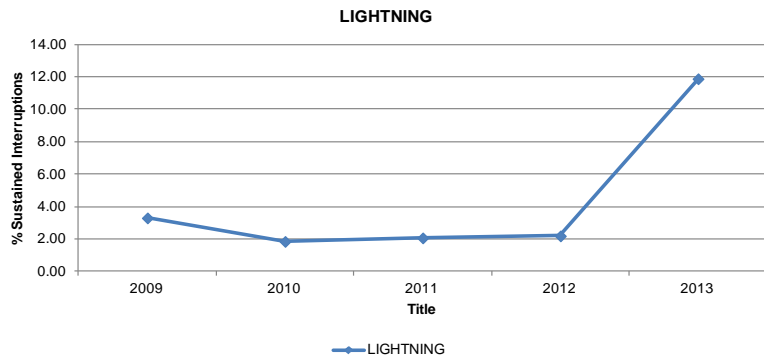
\*not included in calculations

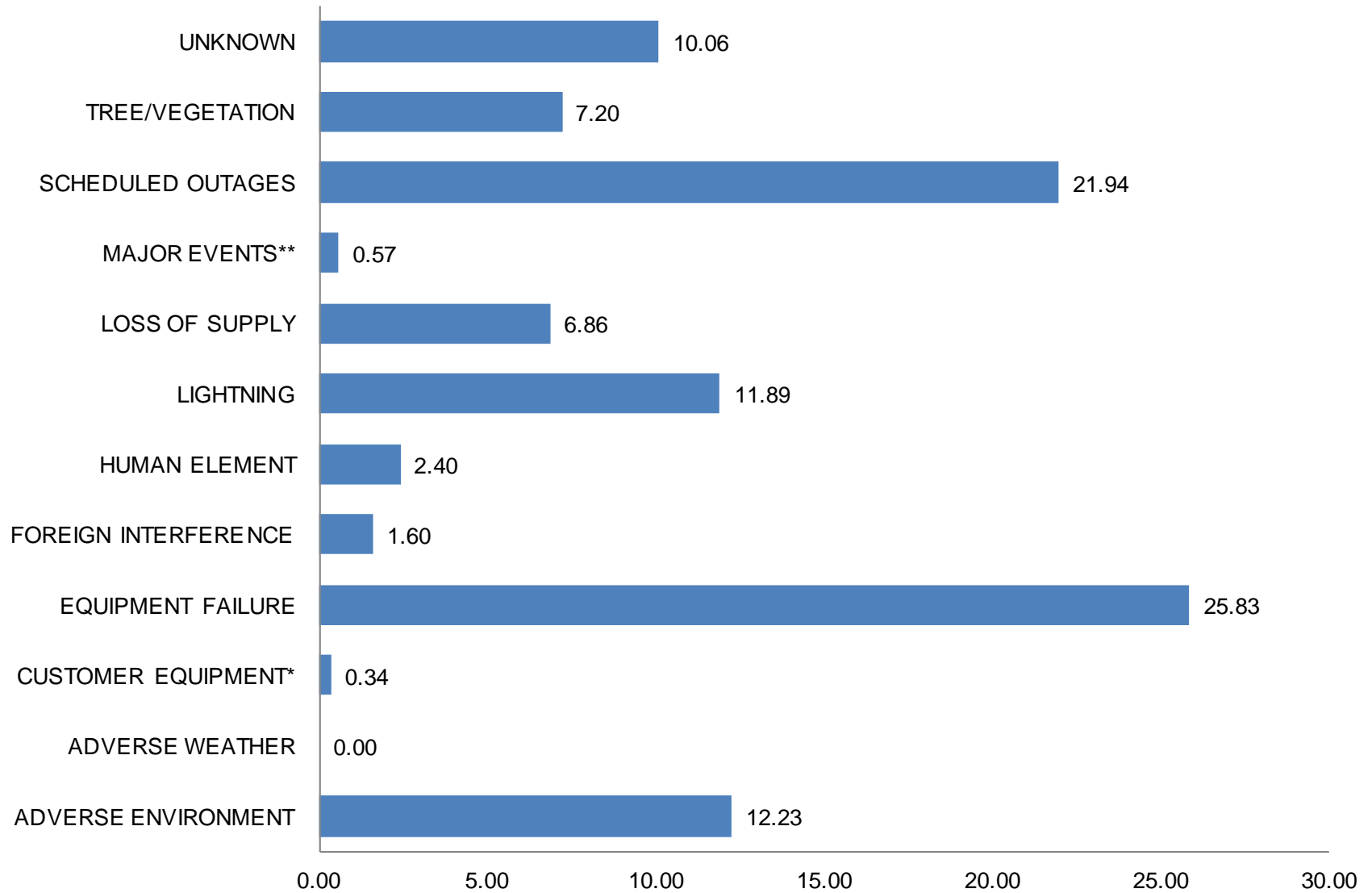
\*\*not included in calculations, see MED summary



# SUSTAINED INTERRUPTIONS CAUSES







**Figure 7**  
2013 causes for sustained interruptions

**Table 7**  
2013 momentary events causes

<b>Cause</b>	<b>Number of Interruptions</b>	<b>Percent of Total</b>	<b>Occurrences Ranking</b>
Unknown	638	98.61	1
Adverse Environment	4	0.62	2
Loss of Supply	2	0.31	3
Equipment Failure	2	0.31	4
Lightning	1	0.15	5
Adverse Weather	0	0.00	0
Customer Equipment*	0	0.00	0
Foreign Interference	0	0.00	0
Human Element	0	0.00	0
Major Events**	0	0.00	0
Scheduled Outages	0	0.00	0
Tree/Vegetation	0	0.00	0
<b>Total</b>	<b>647</b>	<b>100</b>	

\*not Included in calculations

\*\*not Included in calculations see MED Summary

**Table 8**  
Customer count voltage station

<b>Circuit</b>	<b>Substation</b>	<b>Kilovolts (kV)</b>	<b>Customers*</b>
ADRN11	ADRN	12.5	357
ADRN12	ADRN	12.5	572
BACP	BACP	46 KV or Greater	2
BDPK11	BDPK	12.5	1
CARO11	CARO	12.5	1,170
CARO12	CARO	12.5	95
CARO13	CARO	12.5	748
CWVY11	CWVY	12.5	47
CWVY12	CWVY	12.5	111
DRKE11	DRKE	12.5	166
DUKE11	DUKE	12.5	28
DWSY11	DWSY	12.5	173
ESTN11	ESTN	12.5	3
HCSU11	HCSU	12.5	2
HFY11	HFY	12.5	733
HFY12	HFY	12.5	532
HGTN11	HGTN	12.5	71
HGTN12	HGTN	12.5	301
HMDL12	HMDL	12.5	138
HOLY11	HOLY	12.5	179
HOLY12	HOLY	12.5	72
HOLY13	HOLY	12.5	163
HOPE11	HOPE	12.5	127
HRPR11	HRPR	12.5	95

**Table 8 (continued)**

<b>Circuit</b>	<b>Substation</b>	<b>Kilovolts (kV)</b>	<b>Customers</b>
HRPR12	HRPR	12.5	182
JMSN11	JMSN	12.5	383
JMSN12	JMSN	12.5	222
JNDY	JNDY	46 KV or Greater	2
JNTA11	JNTA	12.5	65
JNTA12	JNTA	12.5	45
JNVY11	JNVY	12.5	87
JNVY12	JNVY	12.5	81
JNVY31	JNVY	24	325
LIME11	LIME	12.5	107
MRBT41	MRBT	34.5	10
MRBT42	MRBT	34.5	7
NHTS	NHTS	46 KV or Greater	2
NPSS	NPSS	46 KV or Greater	1
NYSA11	NYSA	12.5	841
NYSA12	NYSA	12.5	539
NYSA13	NYSA	12.5	429
NYSA14	NYSA	12.5	246
OIDA11	OIDA	12.5	614
OIDA12	OIDA	12.5	1
ONTO14	ONTO	12.5	34
ONTO18	ONTO	12.5	849
ONTO19	ONTO	12.5	1,774
ONTO20	ONTO	12.5	1,202
ONTO23	ONTO	24	44

**Table 8 (continued)**

<b>Circuit</b>	<b>Substation</b>	<b>Kilovolts (kV)</b>	<b>Customers</b>
ONTO24	ONTO	24	661
ONTO25	ONTO	24	490
OYDM11	OYDM	12.5	16
PNCK11	PNCK	12.5	98
PNCK12	PNCK	12.5	2
PRMA12	PRMA	12.5	3
PRMA42	PRMA	34.5	175
RKVL11	RKVL	12.5	27
UNTY11	UNTY	12.5	143
UNTY12	UNTY	12.5	220
VALE11	VALE	12.5	1,025
VALE13	VALE	12.5	535
VALE14	VALE	12.5	334
VALE15	VALE	12.5	457
WESR13	WESR	12.5	187
WESR14	WESR	12.5	31
<b>Total</b>			<b>18,367</b>

\* The customer counts represented here are not meant to match those represented on the various other charts/data as a different source was used in order to establish voltage.

**Table 9**  
Five years of line/trench miles data

Year	Overhead (OH) Pole Miles	Underground (UG) Trench Miles	Distribution All Trench Miles	Transmission Line (Structure/Pole) Miles	Customer Counts	OH/UG %
2013	2,113.58	93.31	2,206.88	693.65	18,349.00	87/13
2012	2,112.38	92.65	2,205.03	686.66	18,296.00	87/13
2011	2,112.82	87.77	2,200.59	685.22	19,394.00	87/13
2010	2,114.69	92.13	2,206.82	675.12	19,447.00	87/13
2009	2,120.26	92.11	2,215.54	667.75	19,493.00	88/12

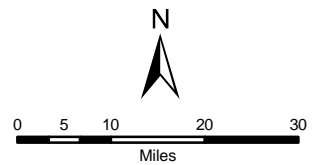
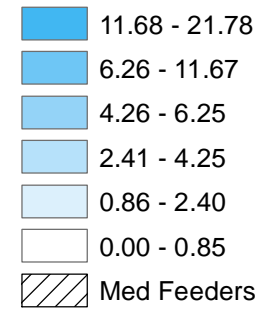
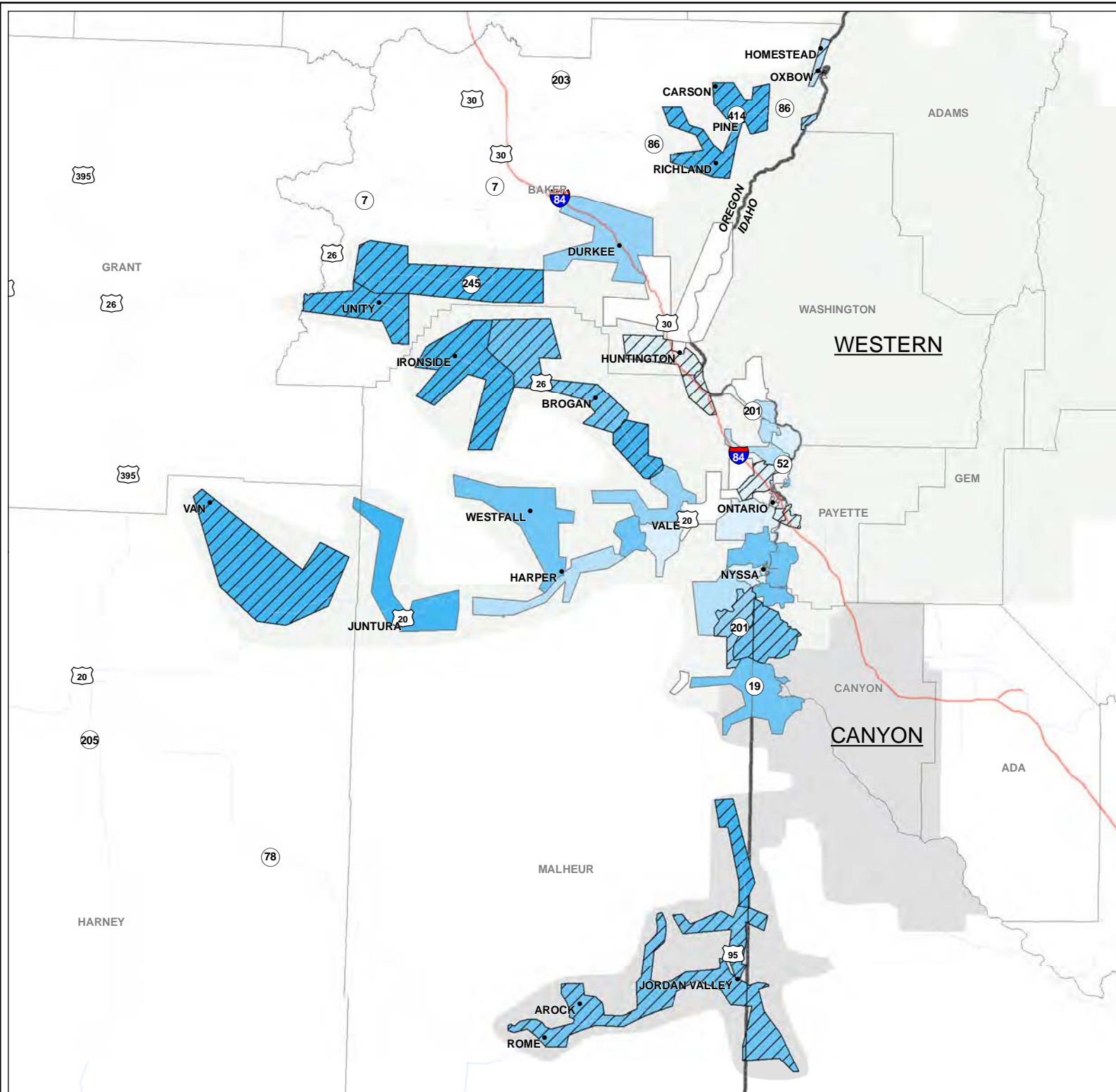
Transmission line miles include some lines that do not directly serve customer load.

**Table 10**  
MED system summary

MED	Customers	Customer Duration (Min)	Customers Out	Day SAIDI	Day SAIFI	Day CAIDI	Cause
1/23/2013	18,308	4,551	568	14.03	0.03	480.76	Loss of supply
4/28/2013	18,308	8,561	1,399	27.99	0.08	367.15	Loss of supply
5/26/2013	18,366	7,524	1,397	24.54	0.08	323.16	Loss of supply
9/15/2013	18,352	7,516	1,124	24.54	0.06	401.22	Lightning/pole fire
12/7/2013	18,373	13,329	1,647	43.53	0.09	485.58	Loss of supply



# 2013 SAIDI MED Excluded OREGON AREA

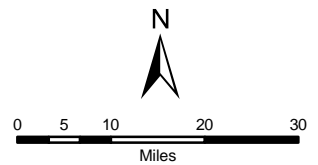
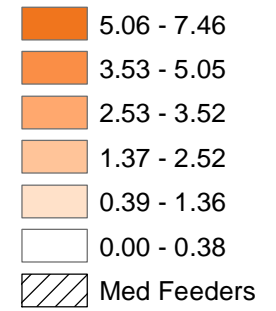
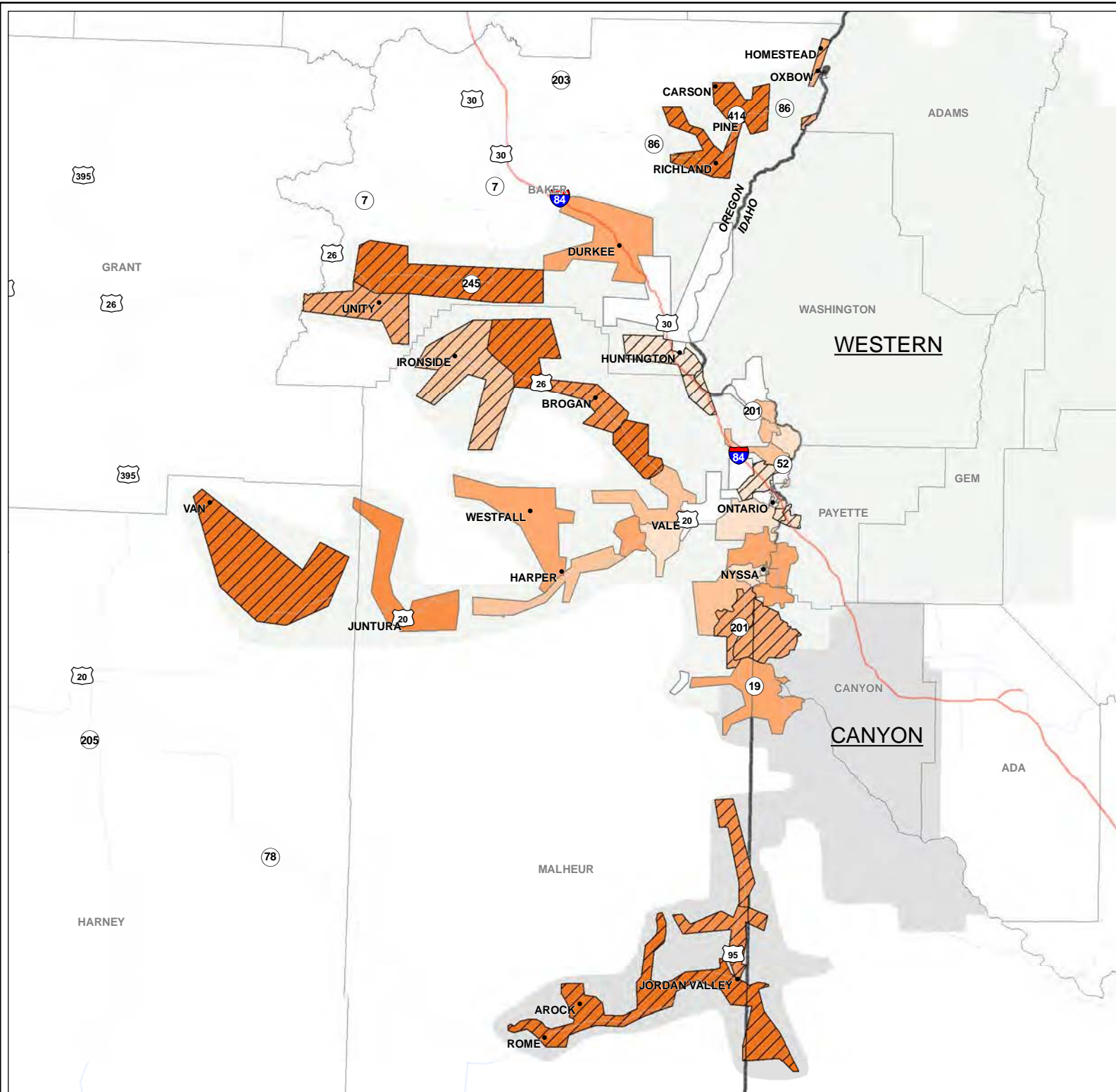


3/3/2014





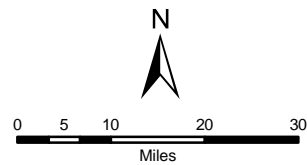
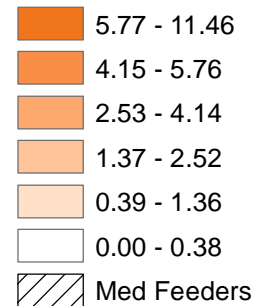
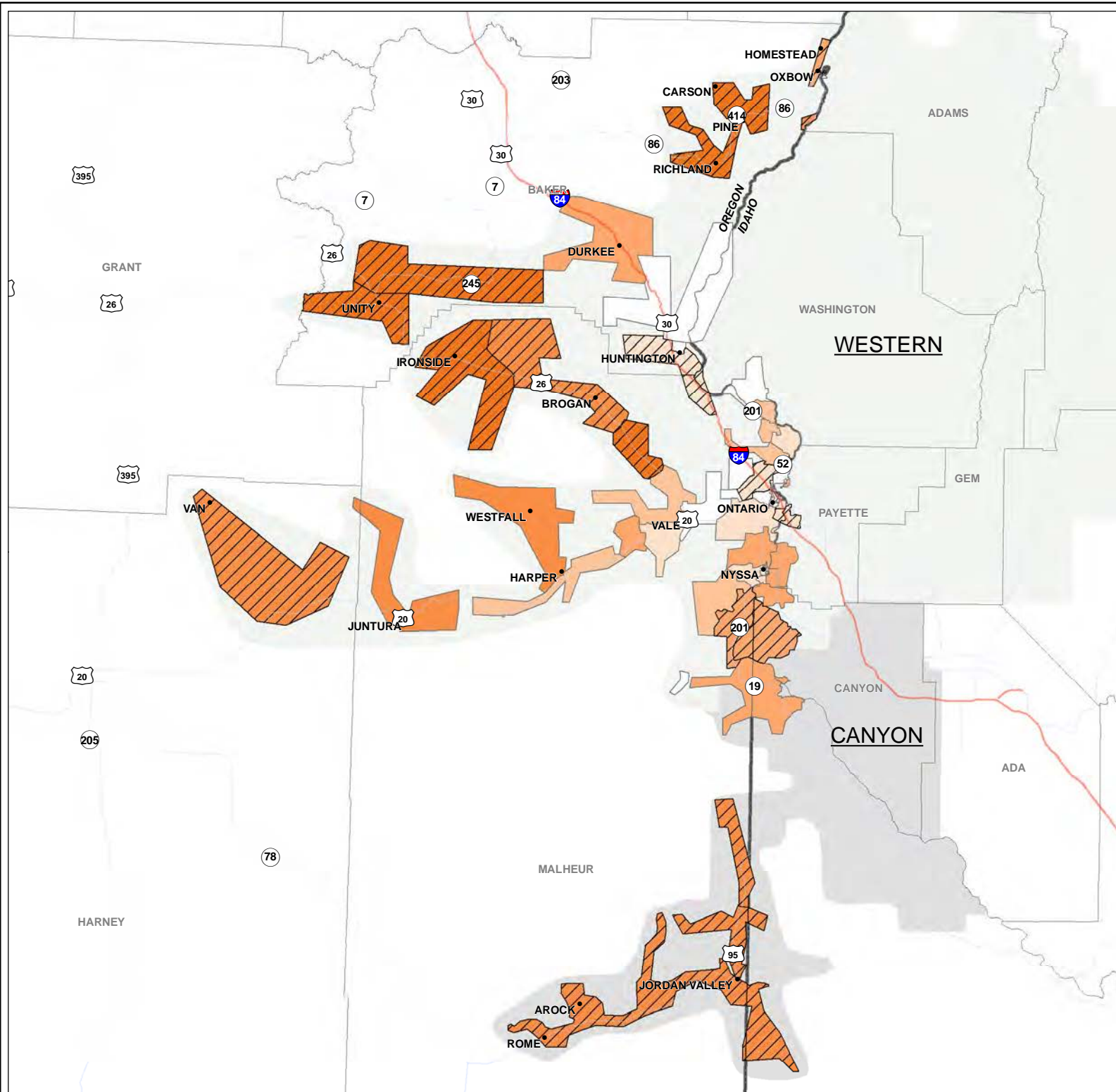
# 2013 SAIFI MED Excluded OREGON AREA



3/3/2014



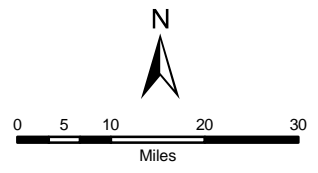
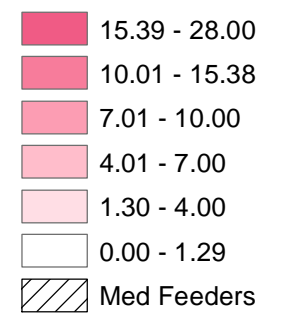
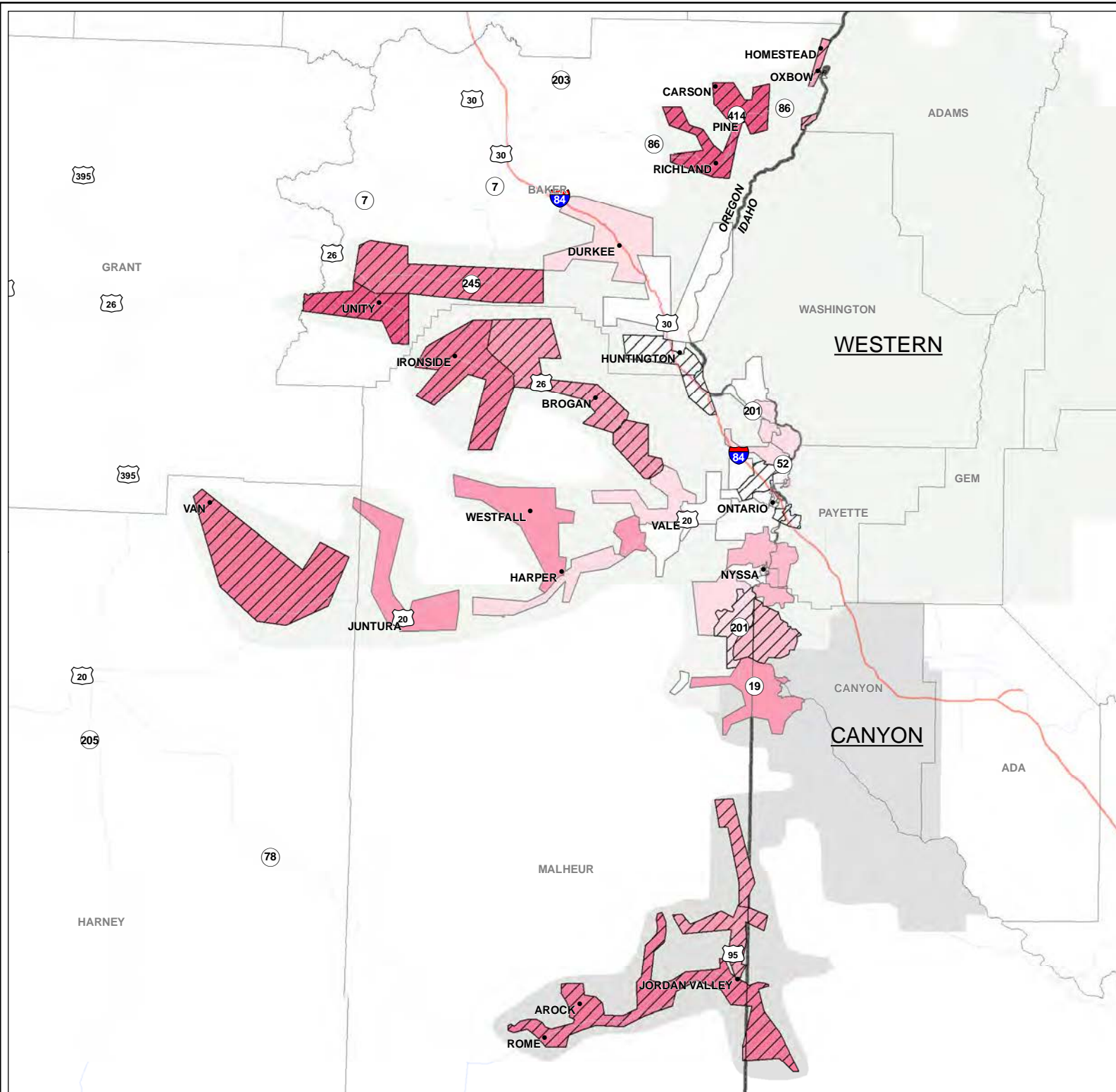
# 2013 SAIFI With MED OREGON AREA



3/3/2014



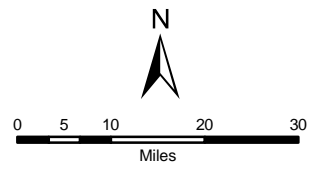
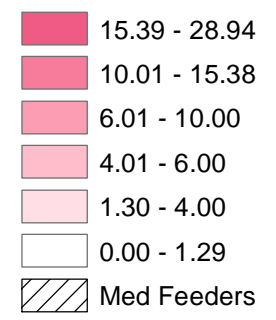
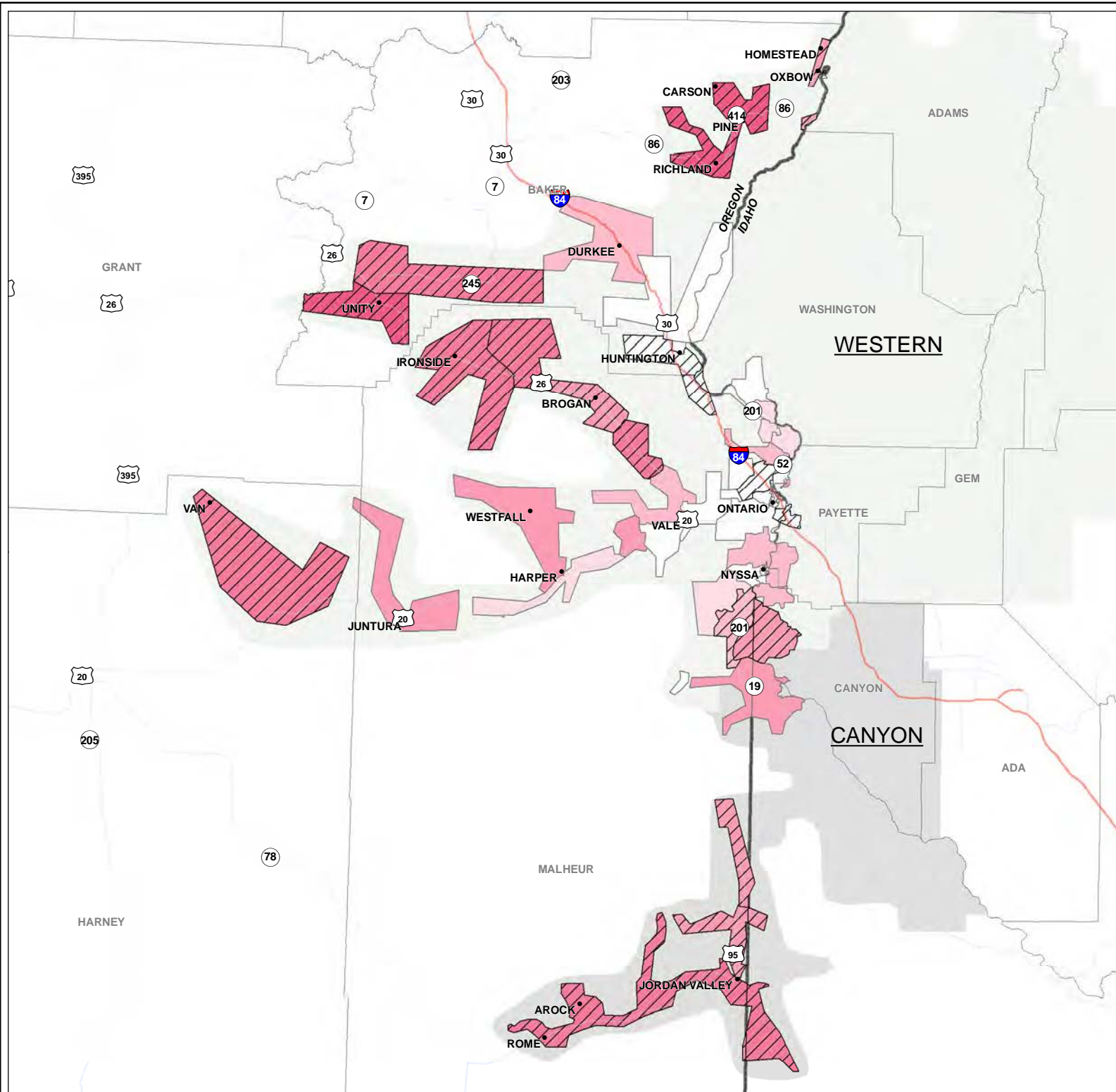
# 2013 MAIFle MED Excluded OREGON AREA



3/3/2014



# 2013 MAIFIE With MED OREGON AREA



3/3/2014

