

# Energy Division Central Files Document Coversheet

**Directions:** Submit all documents and submittal questions to Energy Division Central Files via email [EnergyDivisionCentralFiles@cpuc.ca.gov](mailto:EnergyDivisionCentralFiles@cpuc.ca.gov)

1. Fill out coversheet completely. Coversheet can be embedded as page 1 of the electronic compliance filing, or can be submitted as a separate document that is attached to the email that delivers the compliance filing.
2. All documents are required to be submitted in an electronically *searchable* format.
3. Documents need to reference the reason for the mandate that ordered the filing in Section B or C. If you are unable to reference a proceeding or explain the origin of your filing, please contact Energy Division Central Files.
4. To find a proceeding number (if you only have a decision number), go to <http://docs.cpuc.ca.gov/DecisionsSearchForm.aspx>; enter the decision number, and the results shown include the proceeding number.

## A. Document Name

Today's Date (Date of Submittal) 5/31/2017

### Name:

1. Utility Name: Liberty Utilities (CalPeco Electric) LLC (U 933 E)
2. Document Submission Frequency (Annual, Quarterly, Monthly, Weekly, Once, Ad Hoc): Annual
3. Report Name: Electric System Reliability Annual Report
4. Reporting Interval (the date(s) covered by the data, e.g. 2015 Q1): 2016
5. Name Suffix: Cov (for an Energy Division Cover Letter), Conf (for a confidential doc), Ltr (for a letter from utility)
6. Document File Name (format as 1+2 + 3 + 4 + 5): LIBERTY Annual Electric System Reliability Annual Report 2016

### Sample Document Names:

*Utility Name + Submittal Frequency + Report Name + Year + Reporting Interval*

*SCE Annual Procurement Report 2014*

*SDG&E Ad Hoc DR Exception 2015Q1 Conf*

*SEMPRA Monthly Gas Report 201602*

*SEMPRA Daily Gas Report 20160230 <no suffix for regular, non-confidential compliance data>*

*SEMPRA Daily Gas Report 20160230 Cov*

*SEMPRA Daily Gas Report 20160230 Ltr*

7. Identify whether this filing is  original or  revision to a previous filing.
  - a. If revision, identify date of the original filing: [Click here to enter text.](#)

## B. Documents Related to a Proceeding

All submittals should reference both a proceeding and a decision, if applicable. If not applicable, leave blank and fill out Section C.

1. Proceeding Number (starts with R, I, C, A, or P plus 7 numbers): R1412014
2. Decision Number (starts with D plus 7 numbers): D1601008
3. Ordering Paragraph (OP) Number from the decision: 1

## C. Documents Submitted as Requested by Other Requirements

If the document submitted is in compliance with something other than a proceeding, (e.g. Resolution, Ruling, Staff Letter, Public Utilities Code, or sender's own motion), please explain: [Click here to enter text.](#)

# Energy Division Central Files Document Coversheet

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## D. Document Summary

Provide a Document Summary that explains why this report is being filed with the Energy Division. This information is often contained in the cover letter, introduction, or executive summary, so you may want to copy it from there and paste it here.

The report has been prepared in response to D.16-01-008, which established reliability recording, calculation, and reporting requirements for Liberty Utilities.

## E. Sender Contact Information

1. Sender Name: Daniel W. Marsh
2. Sender Organization: Liberty Utilities (CalPeco Electric) LLC
3. Sender Phone: 562-299-5104
4. Sender Email: dan.marsh@libertyutilities.com

## F. Confidentiality

1. Is this document confidential?  No  Yes
  - a. If Yes, provide an explanation of why confidentiality is claimed, a declaration of confidentiality, and identify the expiration of the confidentiality designation (e.g. Confidential until December 31, 2020.) [Click here to enter text.](#)

## G. CPUC Routing

Energy Division's Director, Edward Randolph, requests that you not copy him on filings sent to Energy Division Central Files. Identify below any Commission staff that were copied on the submittal of this document.

1. Names of Commission staff that sender copied on the submittal of this Document: Doris Lo, David Lee

ver.7/6/2016



**Liberty Utilities<sup>®</sup>**

**ELECTRIC SYSTEM RELIABILITY  
ANNUAL REPORT**

**2016**

**LIBERTY UTILITIES (CALPECO ELECTRIC) LLC  
(U 933 E)**

**Prepared for  
California Public Utilities Commission**

**July 15, 2017**

## EXECUTIVE SUMMARY

The Electric System Reliability Annual Report for 2016 has been prepared in response to CPUC Decision 16-01-008, which was approved January 20, 2016. Decision 16-01-008 established reliability recording, calculation, and reporting requirements for Liberty Utilities (CalPeco Electric) LLC.

CalPeco Electric does not provide transmission services. CalPeco Electric does not have an Open Access Transmission Tariff (OATT). Therefore data is presented for the distribution services only. All statistics and calculations include forced distribution outages. Forced outages are those that are not prearranged. For the purposes of this report, sustained outages are outages that lasted more than five minutes in duration, while momentary outages are outages that lasted five minutes or less in duration.

The reliability indicators that are tracked are as follows:

1. SAIDI (System Average Interruption Duration Index) - minutes of sustained outages per customer per year.
2. SAIFI (System Average Interruption Frequency Index) - number of sustained outages per customer per year.
3. MAIFI (Momentary Average Interruption Frequency Index) - number of momentary outages per customer per year.
4. CAIDI (Customer Average Interruption Duration Index) – is the average time required to restore service to a utility customer.

CalPeco Electric presents six years (2011 through 2016) of data, which represents the period in which Liberty Utilities purchased CalPeco Electric from NV Energy.

Beginning in 2013, the measurement of each reliability performance indicator excludes IEEE Major Event Days (MED) instead of CPUC Major Events. An IEEE Major Event Day is defined in IEEE-1366, Section 4.5 as a day in which the daily system SAIDI exceeds a threshold value. These threshold major event days are referred to as “TMED”. Thus, any day in which the total system SAIDI exceeds TMED is excluded from CalPeco Electric’s reliability results. The applicable TMED value is calculated at the end of each year using CalPeco Electric’s daily SAIDI values for the prior five years. CalPeco Electric’s TMED value for 2016 was 104.57 minutes of daily system SAIDI. Other reliability indices in this report are not calculated using methodologies or formulas exactly as described in the IEEE guide for electric power Distribution Reliability indices (IEEE-1366).

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**1) System Indices for the Last 6 Years (Years CalPeco Electric in business)**

a. Separate tables with SAIDI, SAIFI, MAIFI and CAIDI (Major Event Day (MED)) included and excluded.

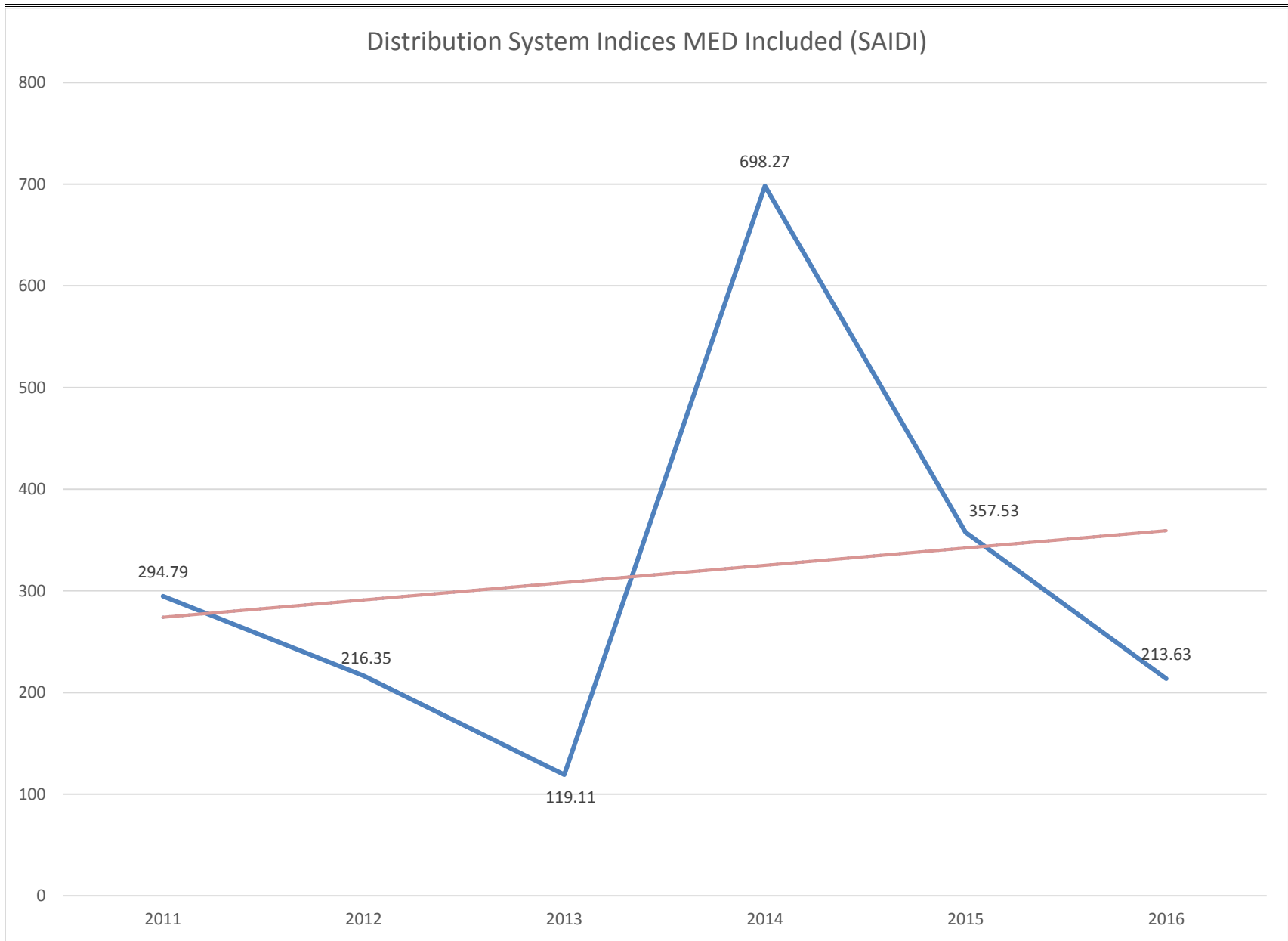
I. Distribution System Indices (Major Event included and excluded)

Liberty Utilities (CalPeco Electric), LLC Distribution Historical System Reliability Data 5 Years (Years in Business)								
Year	Major Event Included				Major Event Excluded			
	SAIDI	SAIFI	CAIDI	MAIFI	SAIDI	SAIFI	CAIDI	MAIFI
2016	213.63	1.4735	144.98	1.08	213.63	1.4735	144.98	1.08
2015	357.53	2.0122	177.68	1.15	357.53	2.0122	177.68	1.15
2014	698.27	3.6284	192.44	2.15	352.37	2.4039	146.58	2.15
2013	119.11	1.2311	96.75	2.08	119.11	1.2310	96.79	2.08
2012	216.35	1.5530	139.31	2.75	216.35	1.5530	139.31	2.75
2011	294.79	1.8130	162.60	1.88	192.22	1.2460	154.27	1.88

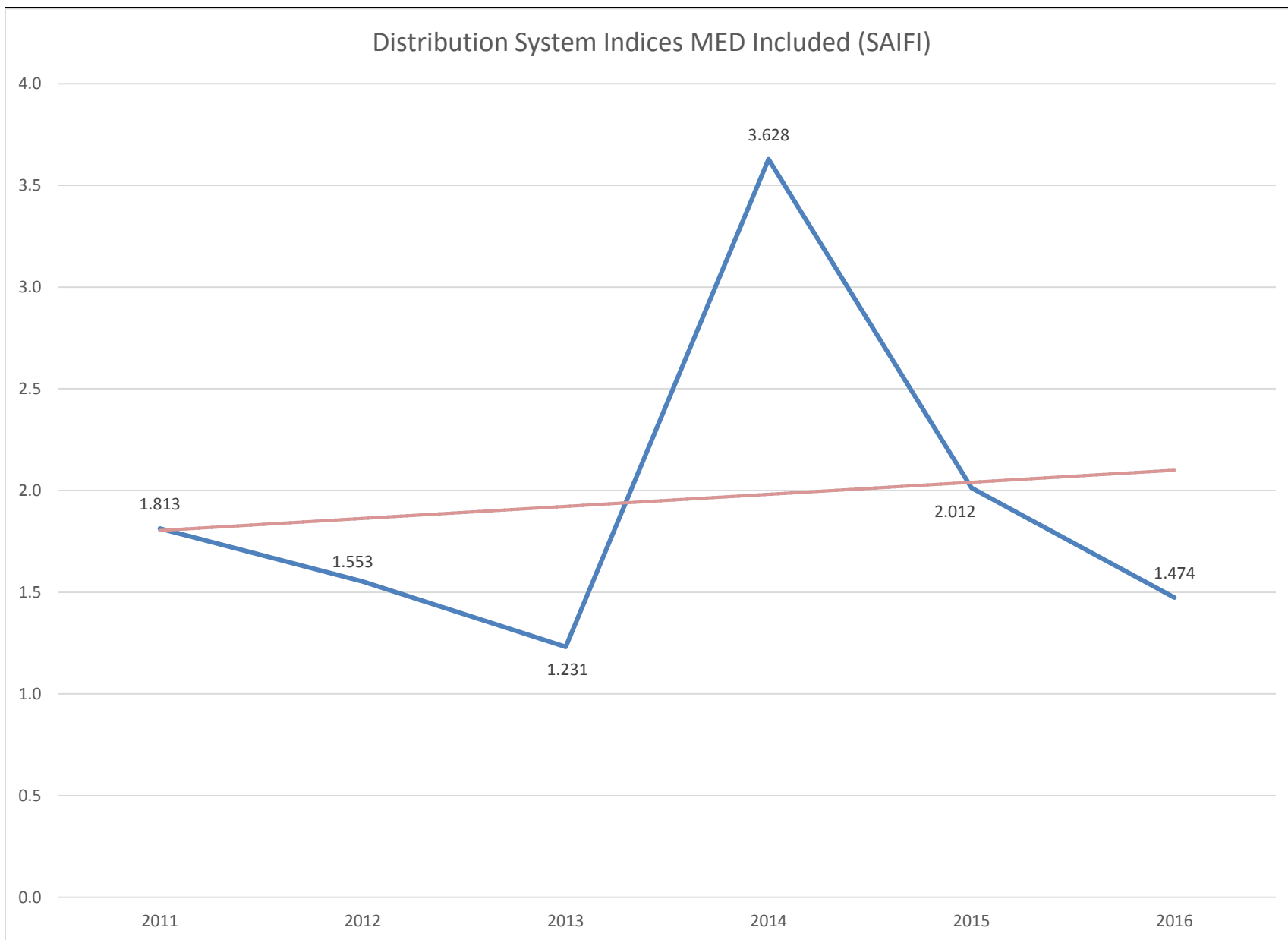
II. Transmission System Indices (MED Included and Excluded)

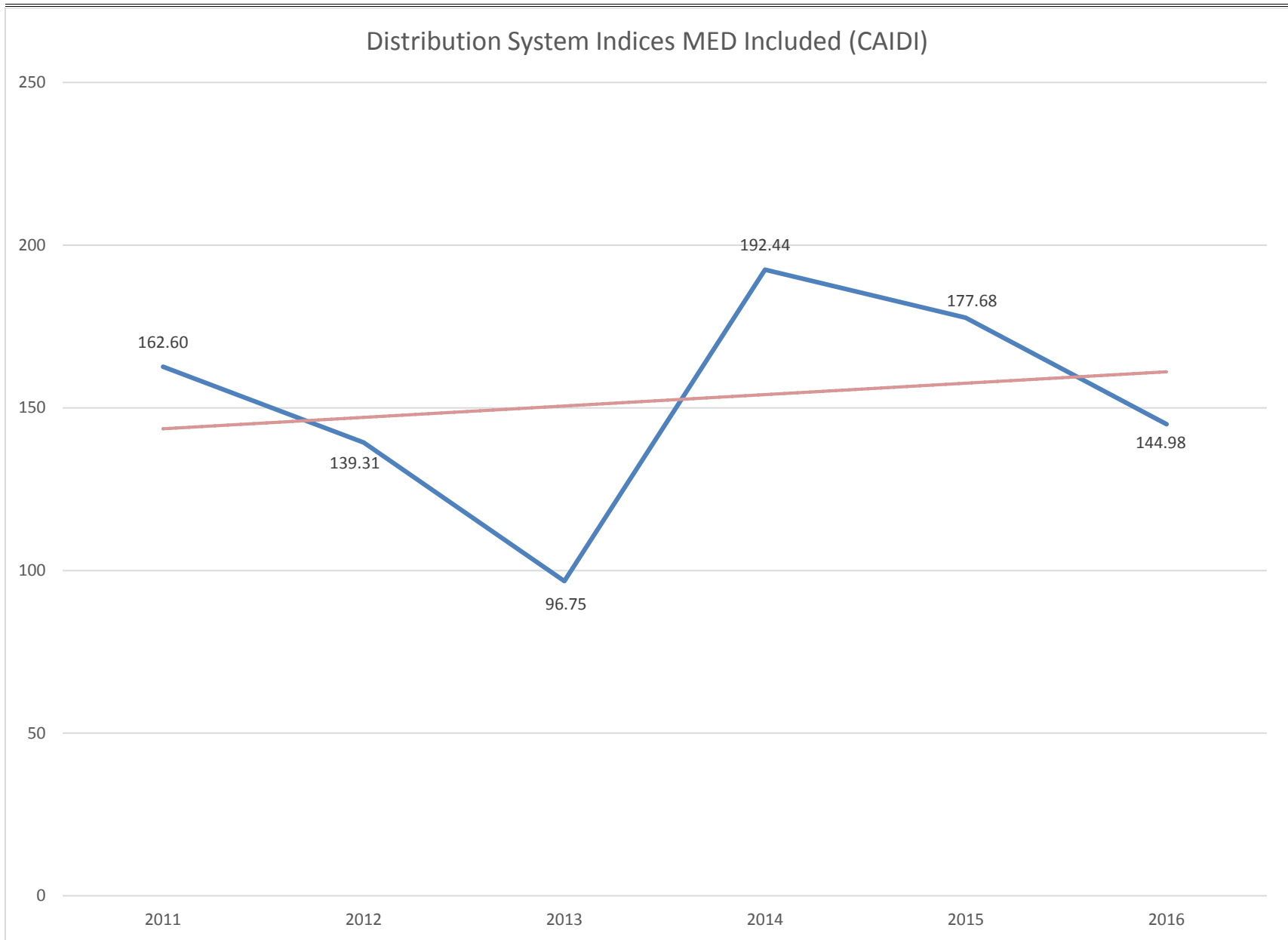
Liberty Utilities (CalPeco Electric), LLC does not own Transmission.

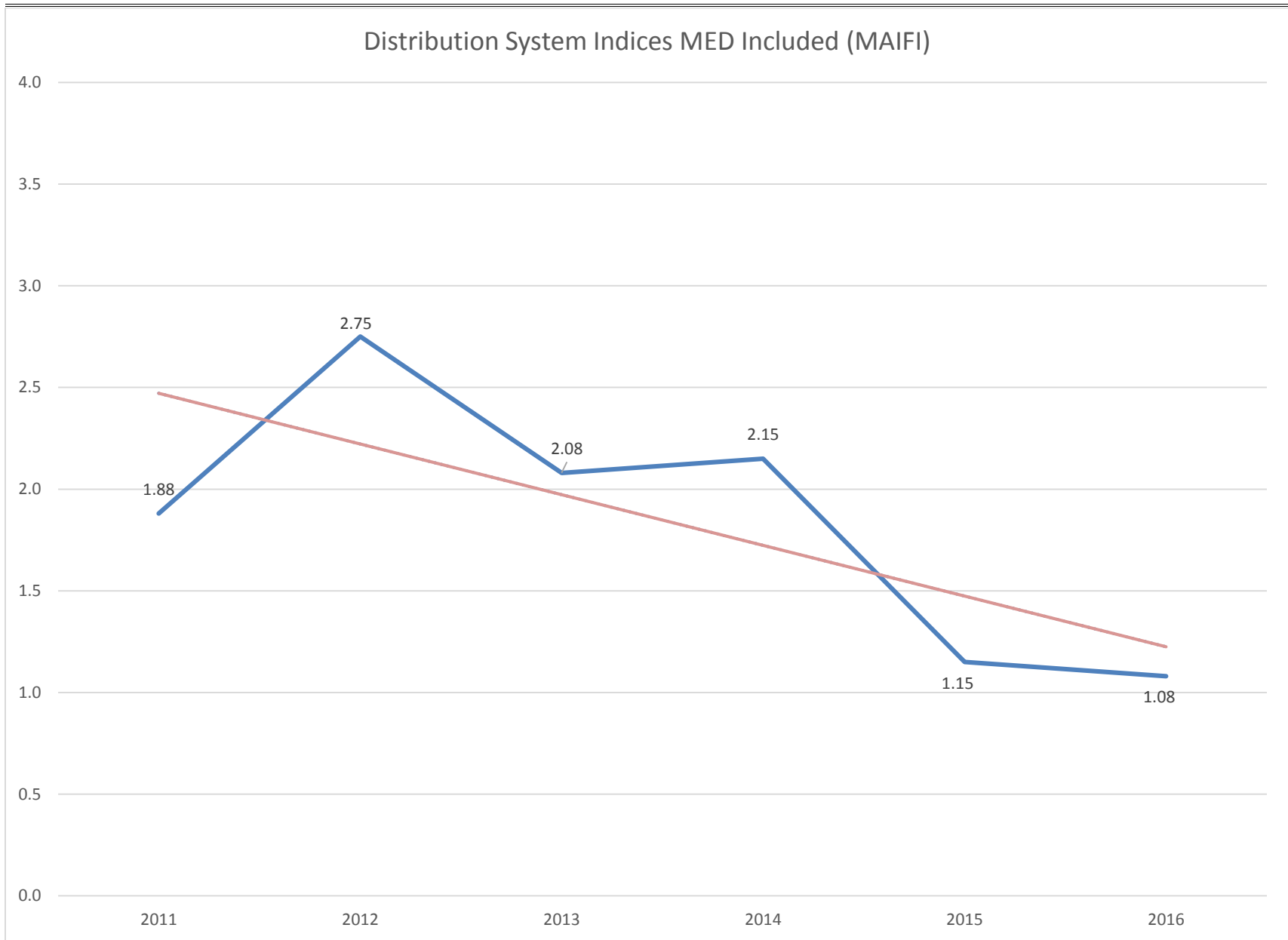
b. Separate charts showing a line graph of distribution system SAIDI, SAIFI, MAIFI, and CAIDI for the past 6 years (year in business) with linear trend line (TMED included and excluded).

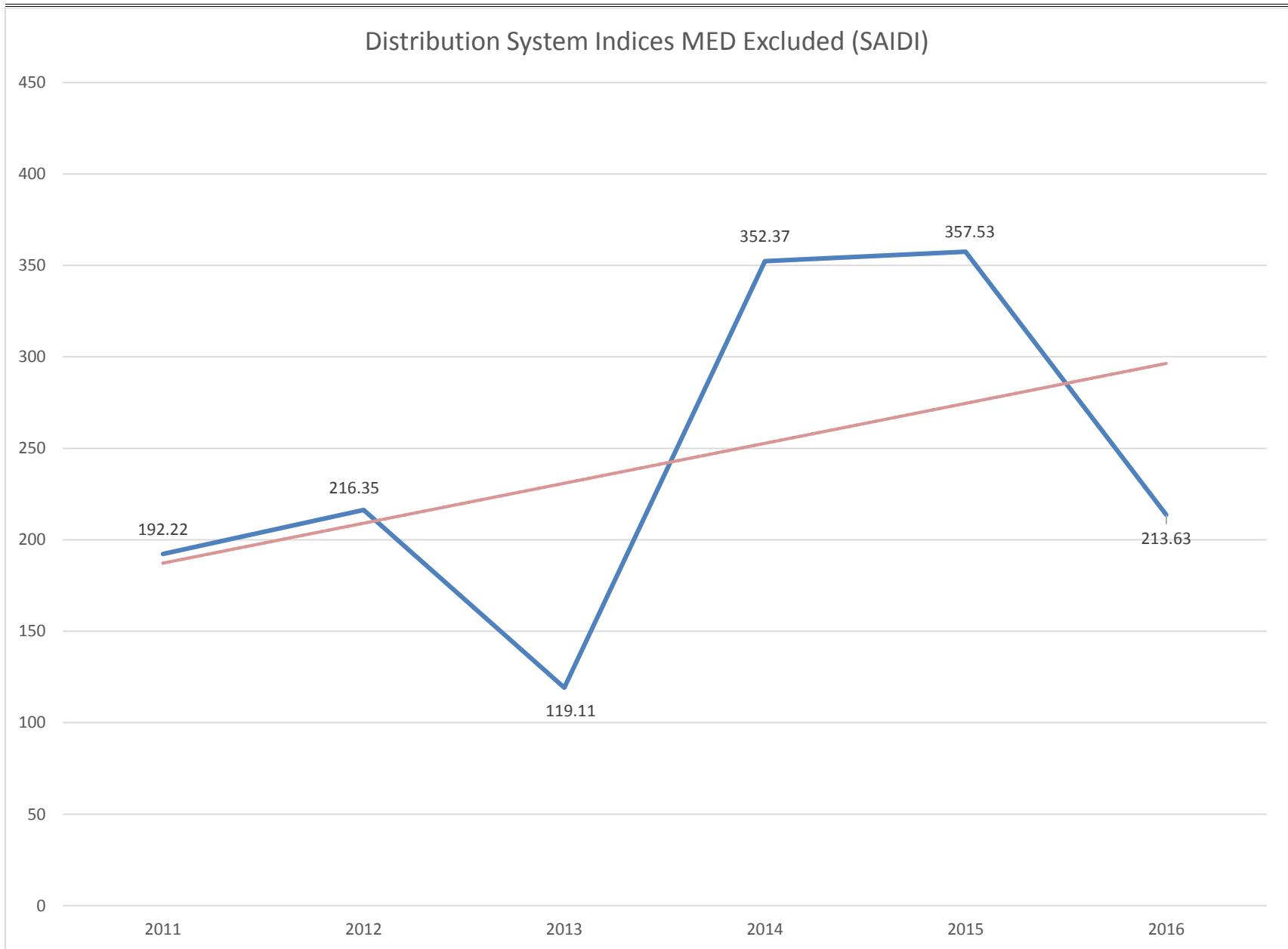


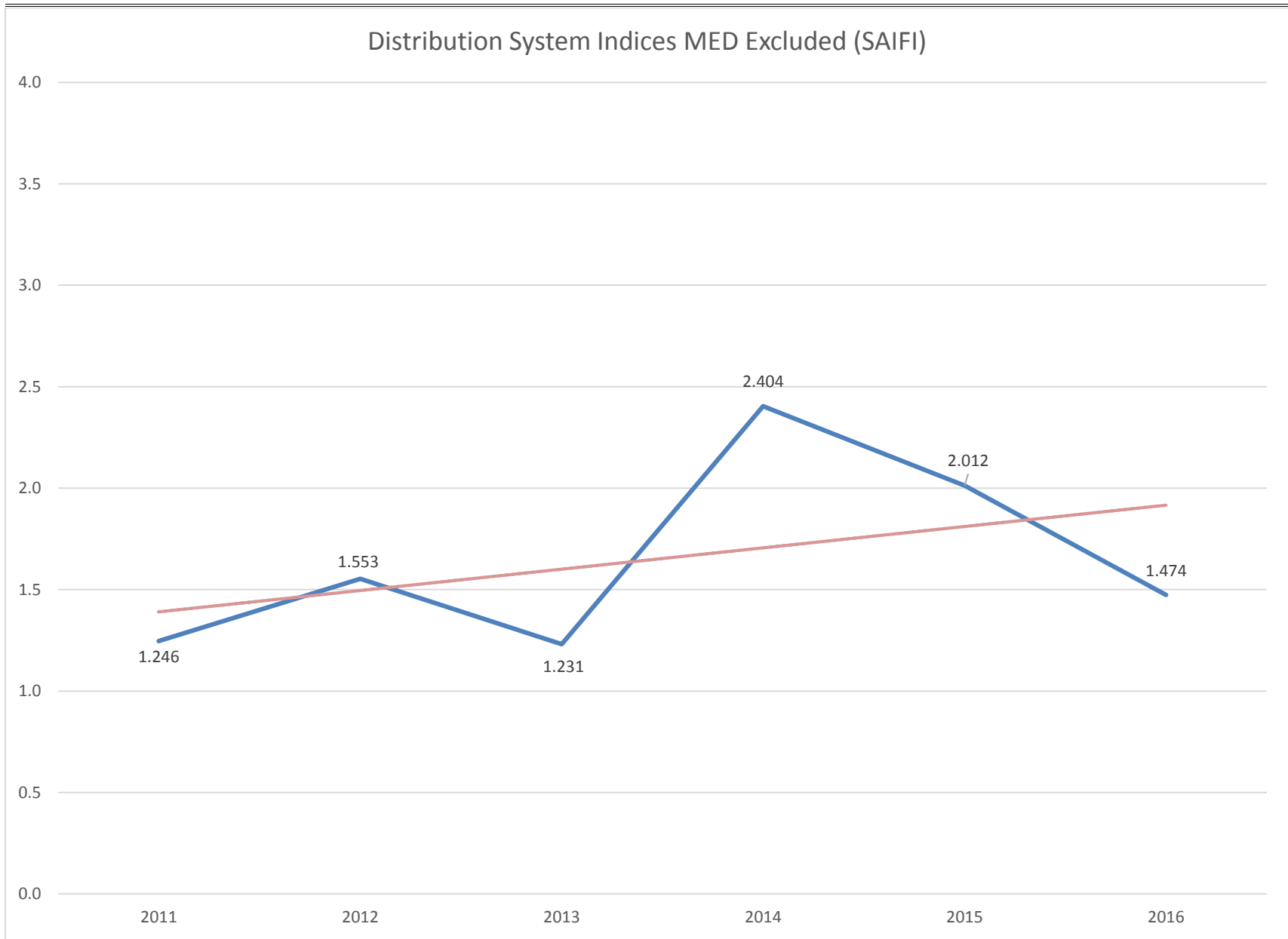


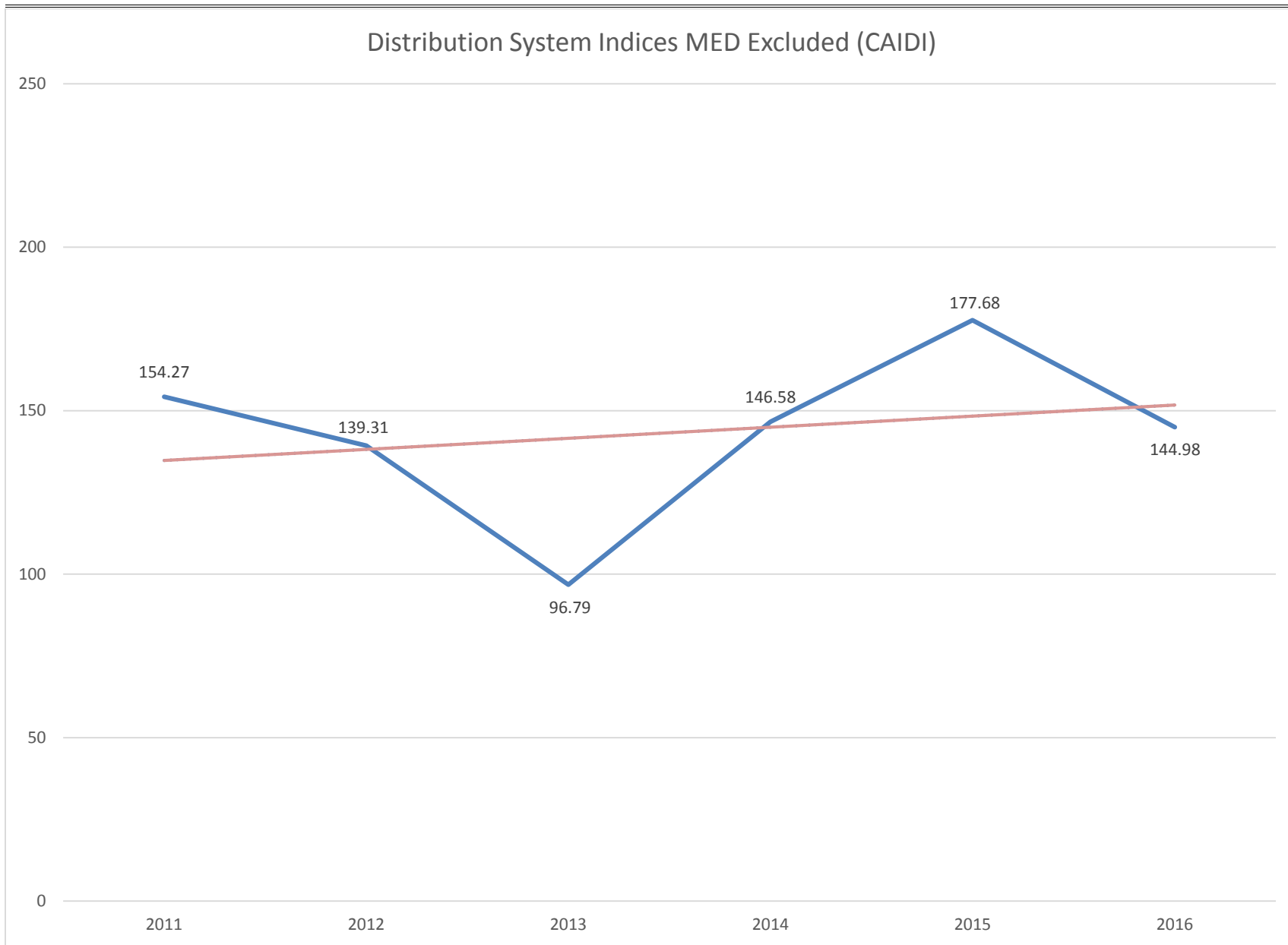


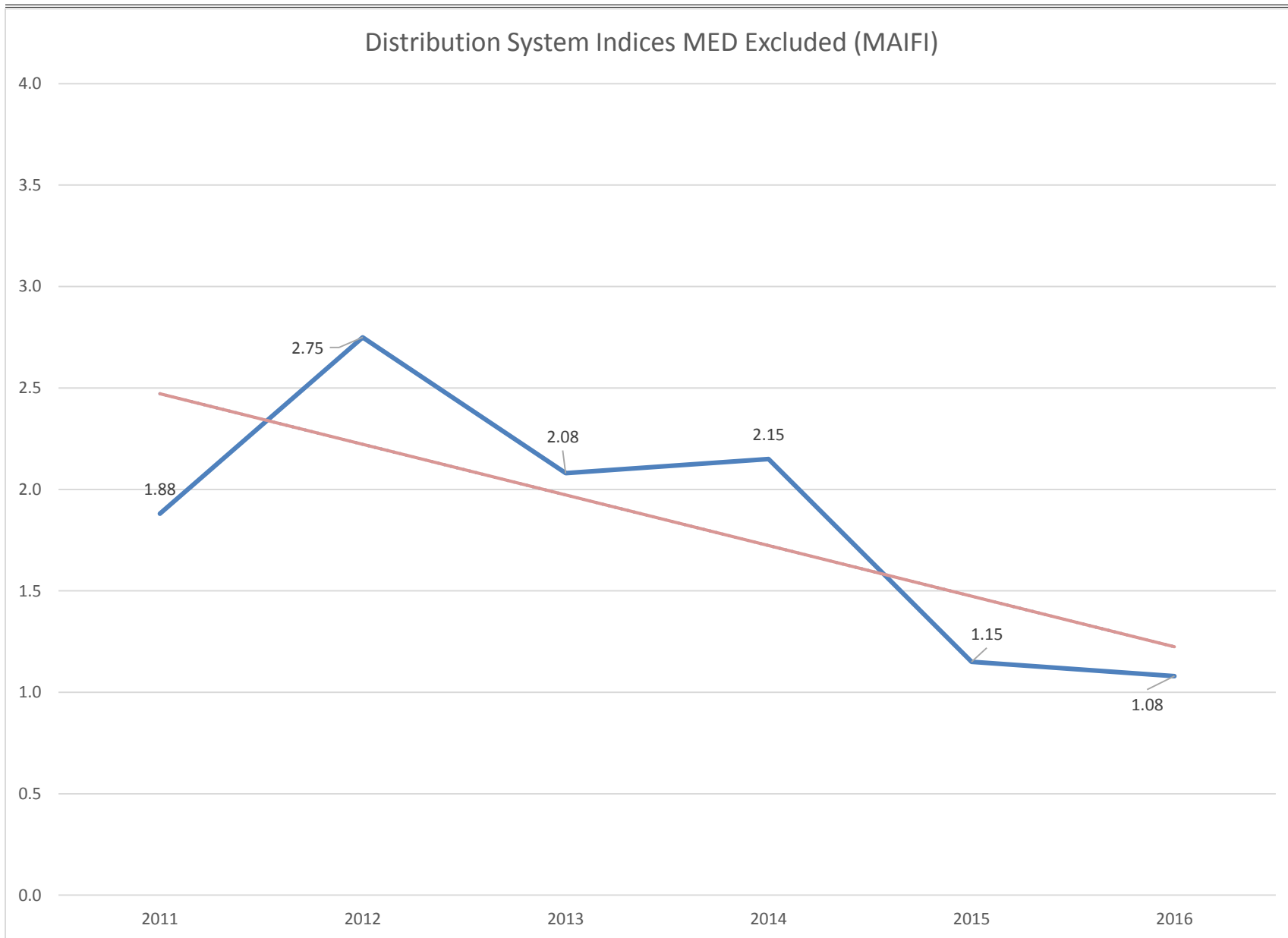












**2) Division (or District) Reliability Indices for the past 10 years**

Liberty Utilities (CalPeco Electric), LLC has one division, Lake Tahoe. See section 1 for indices.

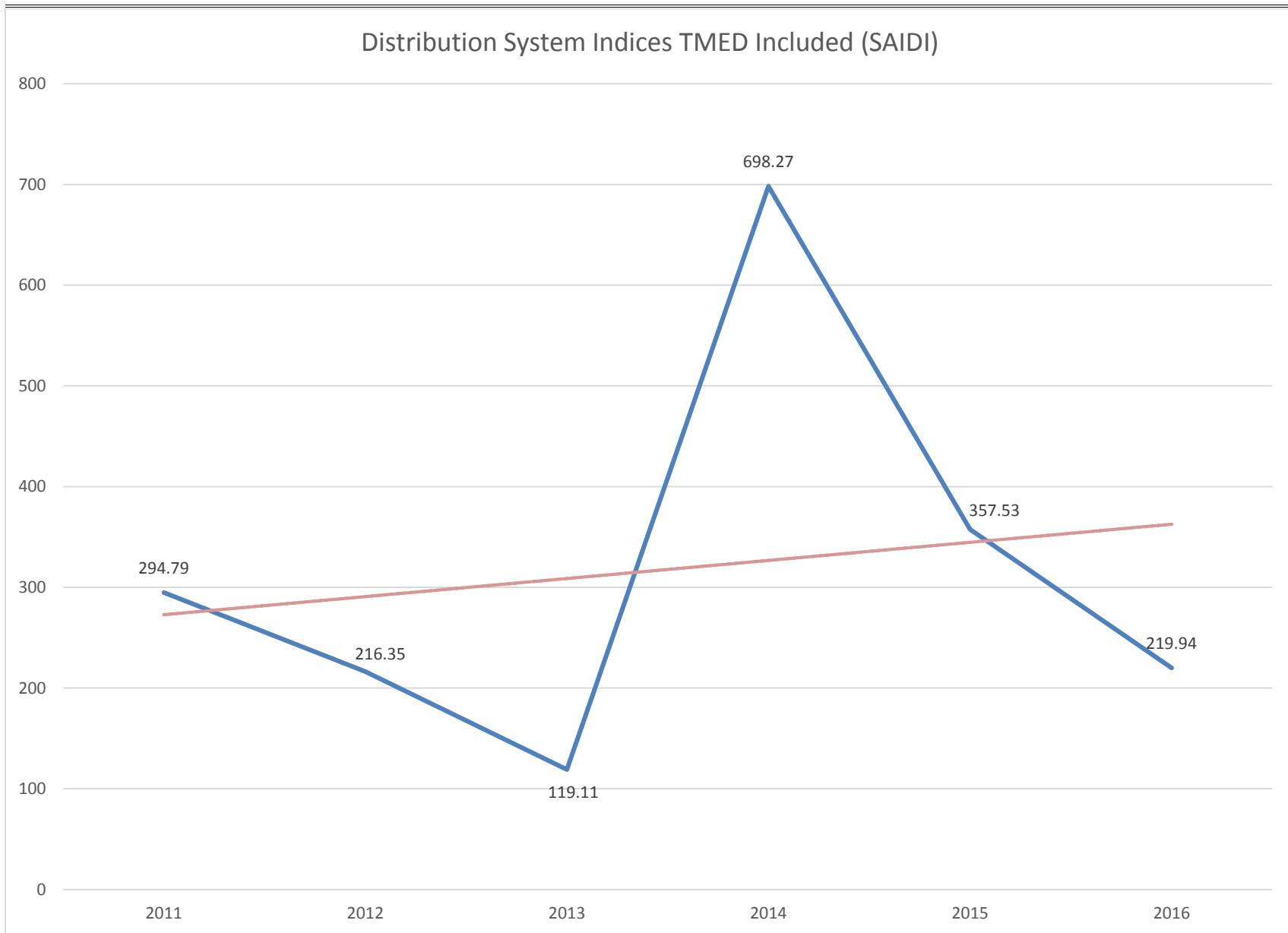
**3) System and Division indices based on IEEE 1366 for the past 6 years including planned outages and including and excluding TMED**

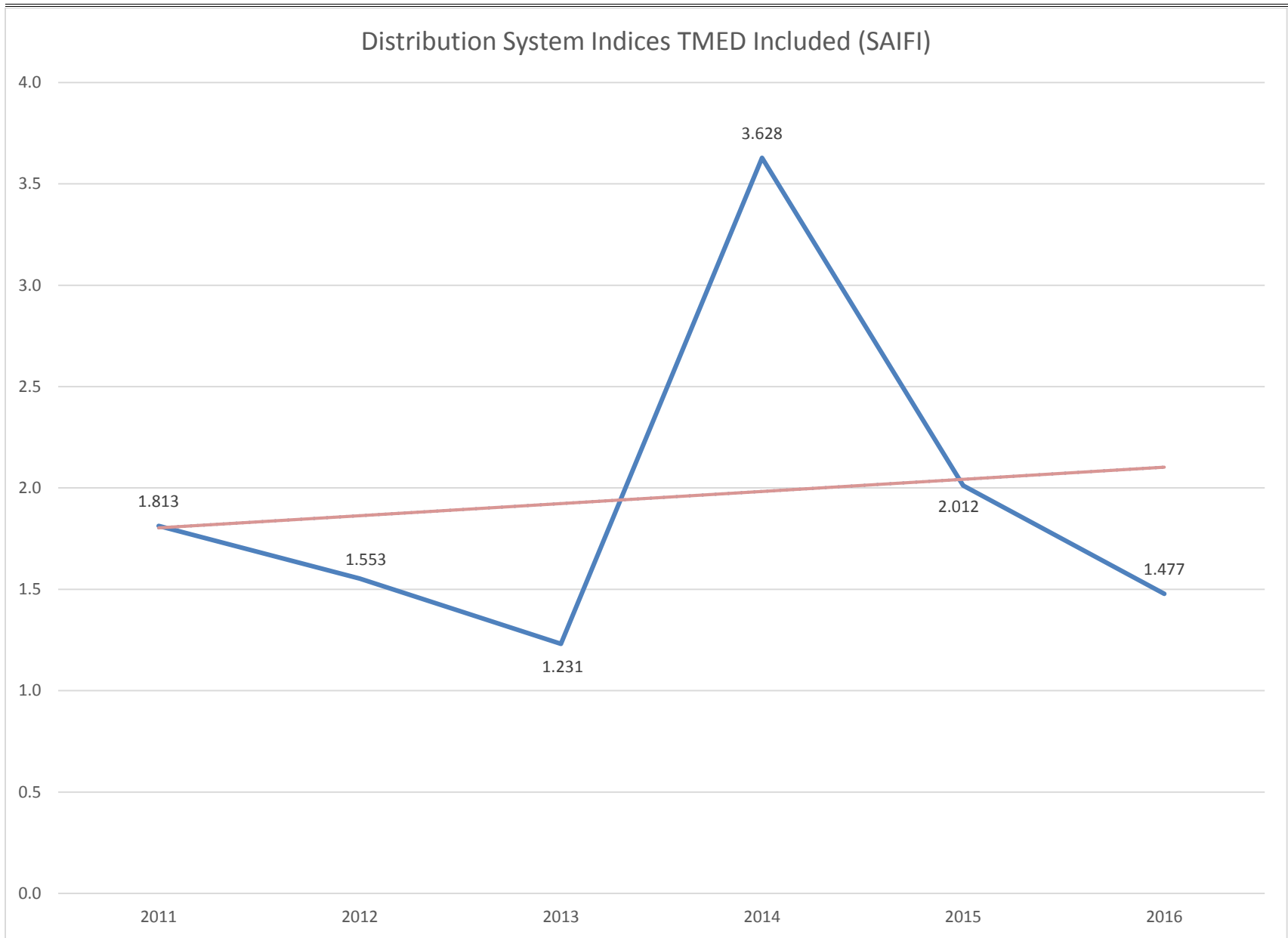
a. SAIDI, SAIFI, MAIFI, and CAIDI Data

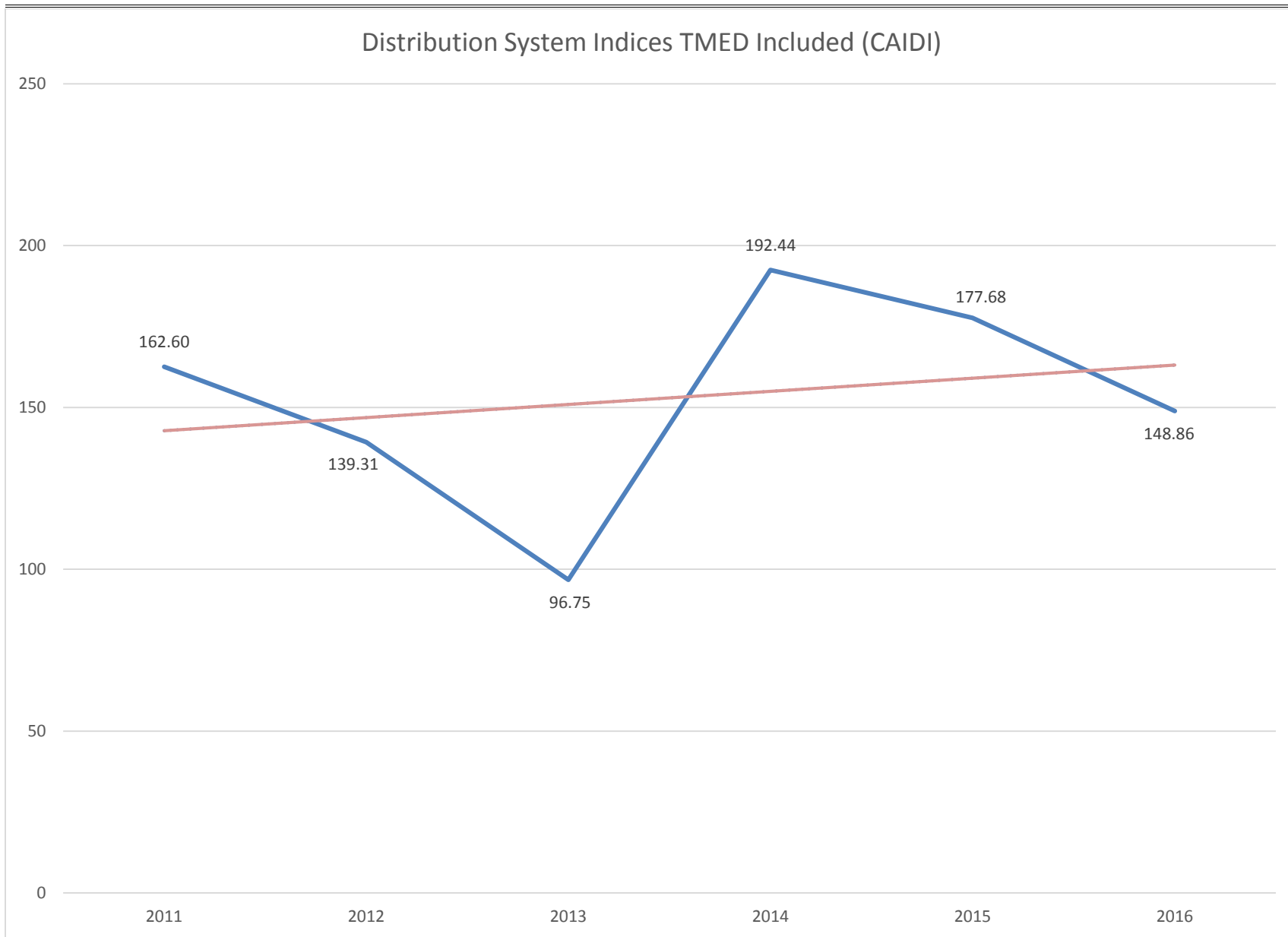
Liberty Utilities (CalPeco Electric), LLC <u>Distribution</u> Historical System Reliability Data 6 Years (Years in Business)								
Year	TMED Included				TMED Excluded			
	SAIDI	SAIFI	CAIDI	MAIFI	SAIDI	SAIFI	CAIDI	MAIFI
2016	219.938	1.4774	148.86	1.08	219.938	1.4774	148.86	1.08
2015	357.531	2.0122	177.68	1.15	207.868	1.7409	119.40	1.15
2014	698.273	3.6284	192.44	2.15	323.745	2.2384	144.63	2.15
2013	119.109	1.2311	96.75	2.08	119.168	1.2311	96.79	2.08
2012	216.349	1.5530	139.31	2.75	170.439	1.5490	110.03	2.75
2011	294.795	1.8130	162.60	1.88	147.351	1.3207	111.57	1.88

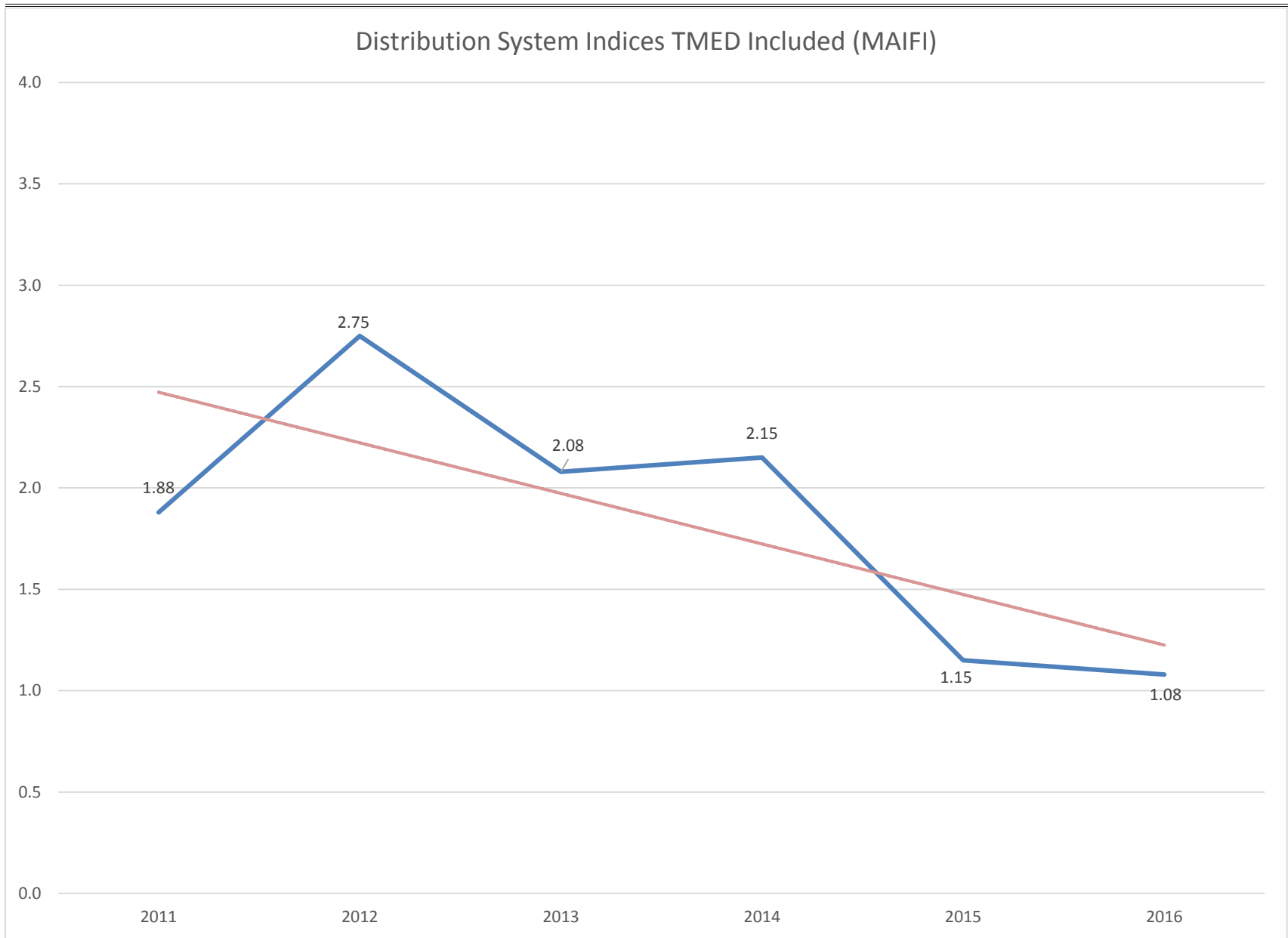
CalPeco Electric has been in business for 6 years and therefore does not have 10 years of data.

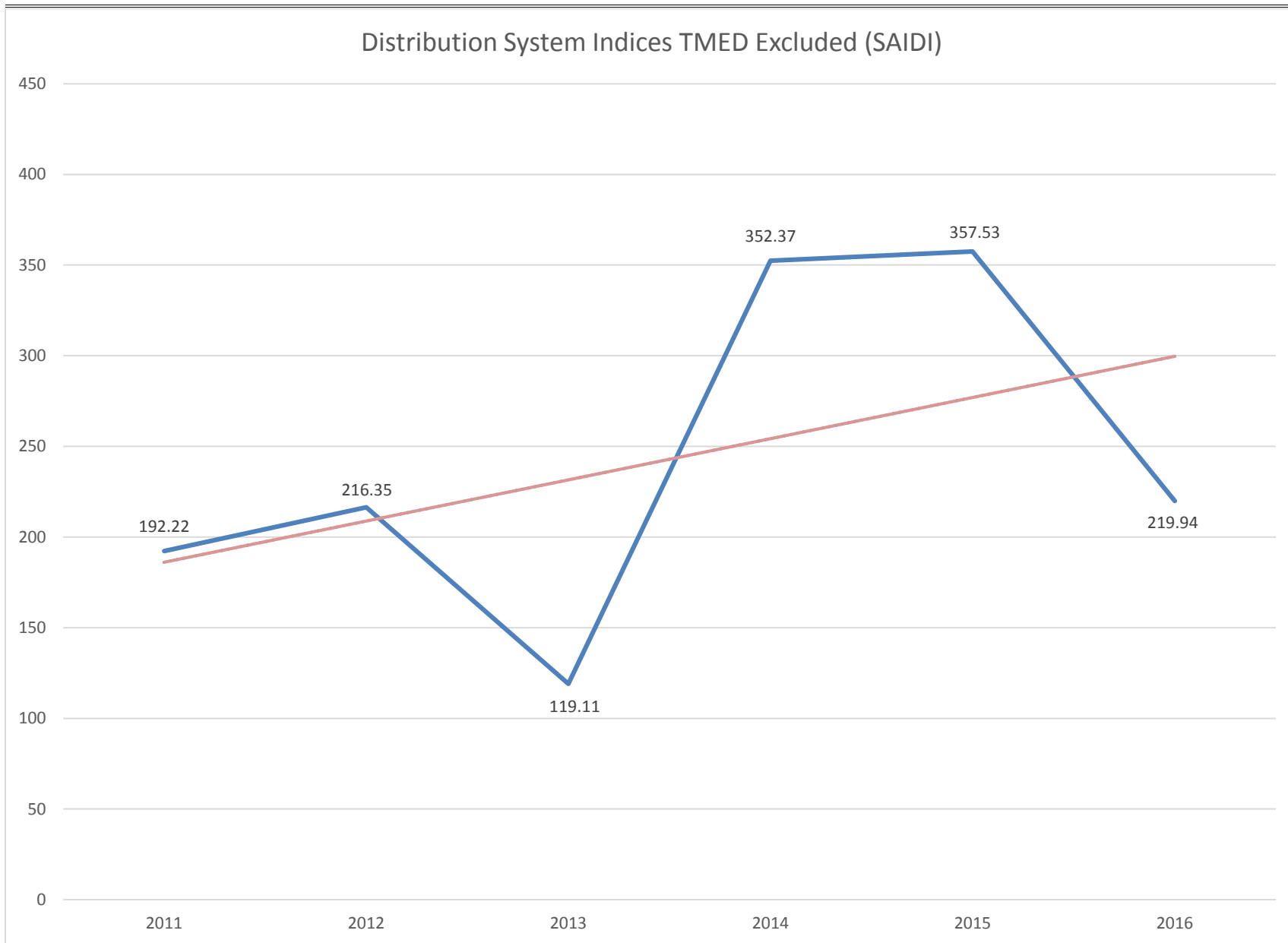


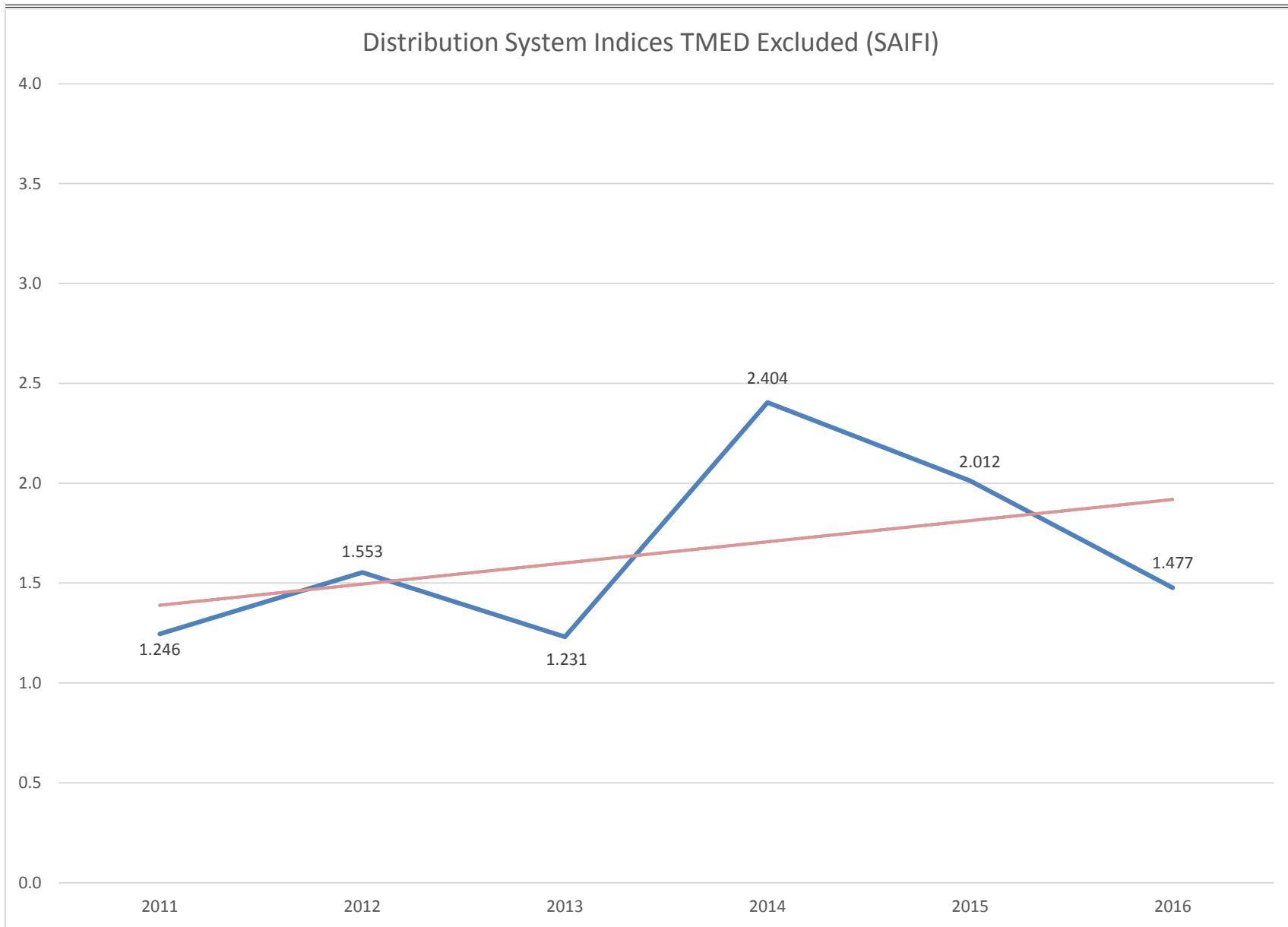


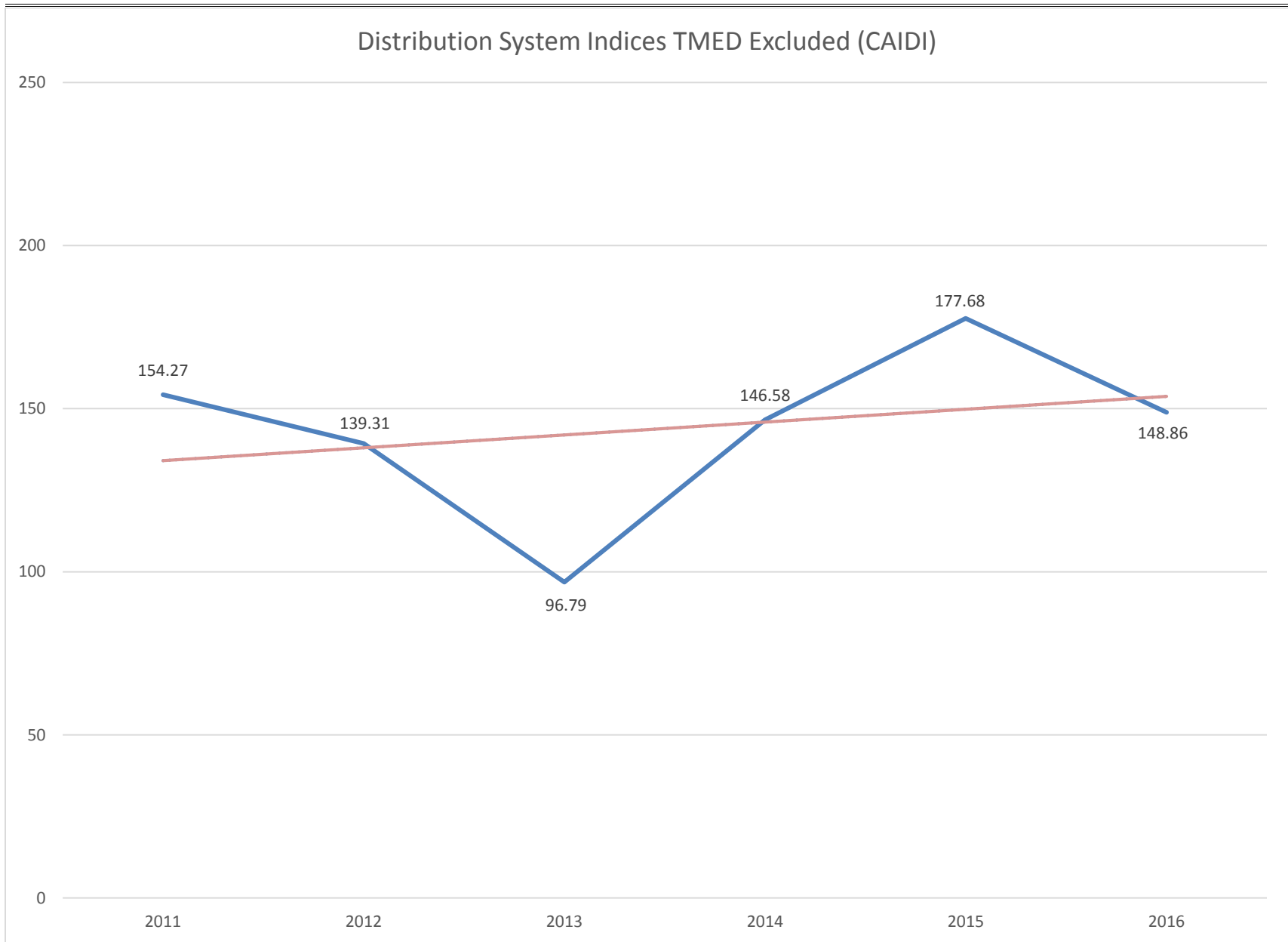


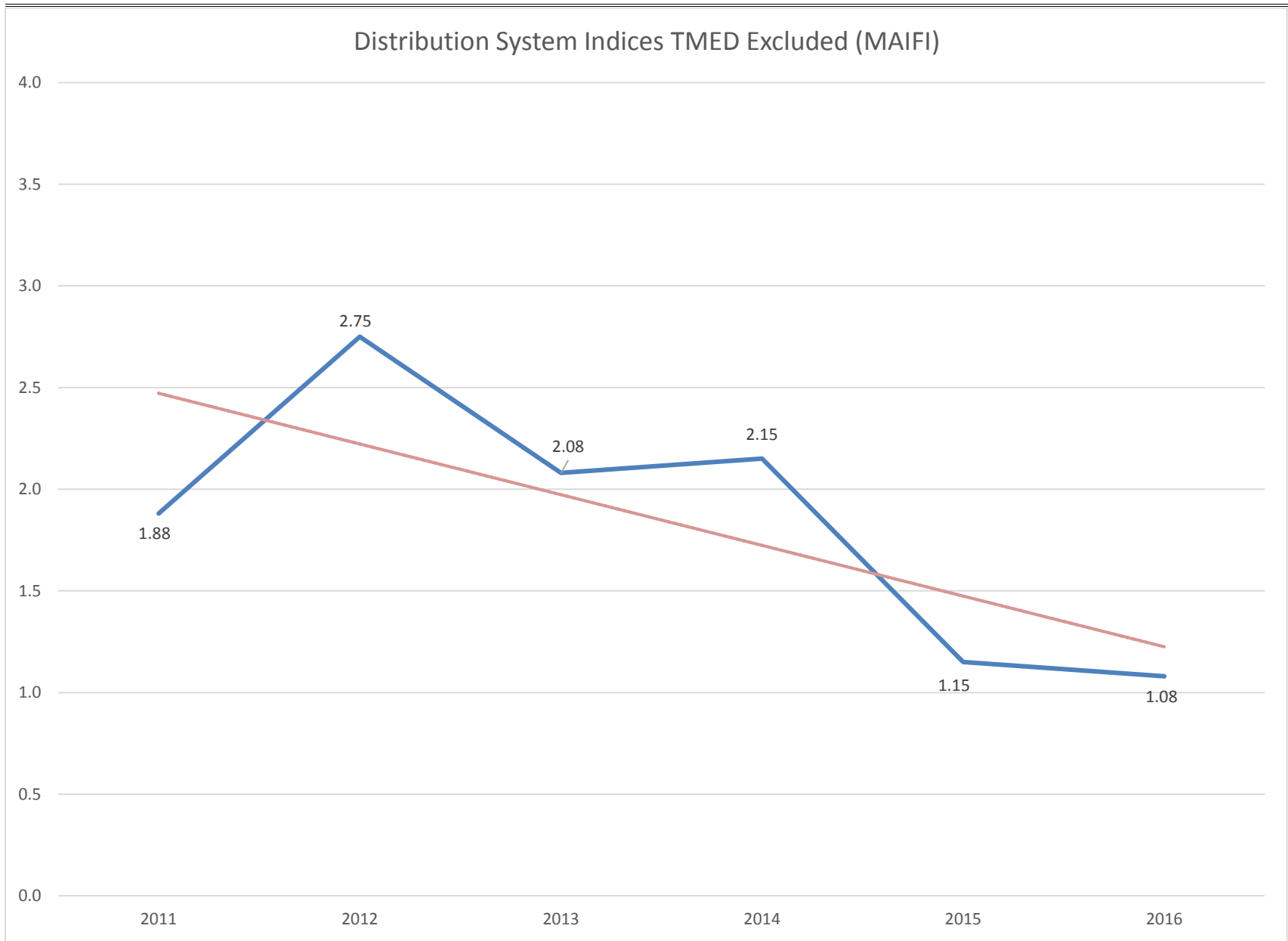














## b. The number, date, and location of planned outages

Circuit	District	Number of Planned Outages By Year					
		2016	2015	2014	2013	2012	2011
31	Tahoe		1				
32	Tahoe	1					
41	Tahoe	1					
201	Tahoe				1		
204	Tahoe	1					
619	Tahoe					1	
650	Tahoe		1			1	
1296	Tahoe		5	1			
2200	Tahoe		1	1			
2300	Tahoe		1	2		1	
3100	Tahoe					1	1
3101	Tahoe			2	2		
3200	Tahoe		1			1	
3300	Tahoe		3			2	
3400	Tahoe		5		2	4	
3500	Tahoe		1				
3501	Tahoe		2	2	4	1	1
4201	Tahoe	1					
4202	Tahoe				2	5	1
5100	Tahoe				1	1	
5200	Tahoe		4	1	1	3	
5201	Tahoe	5	4	1		1	
7100	Tahoe			1	1	4	
7200	Tahoe		1	1	1	2	
7201	Tahoe	1	2	1			
7202	Tahoe		2	3	1		
7203	Tahoe		2	2	4		
7300	Tahoe	6	4	16	4	5	2
7400	Tahoe	1	1				1
7600	Tahoe		1				1
7700	Tahoe			1			
7800	Tahoe			2			
8200	Tahoe	3	2	4			1
8300	Tahoe		6			2	
8400	Tahoe						
8500	Tahoe	1			1	2	
8600	Tahoe		4			2	



**5) Top two worst performing circuits (WPC) excluding TMED**

- I. For each of these circuits each utility shall include the following information in its annual report: 1) Circuit Name; 2) District/Division; 3) Customer Count; 4) Substation name; 5) Circuit-miles; 6) Percentage underground, or “% UG”; 7) Percentage overhead or “% OH”; 8) Number of mainline/feeder/backbone outages resulting in the operation of either a circuit breaker (“CB”) or automatic re-closer (“AR”); and, 9) its preferred reliability metric.

Circuit	District	Customer Count	Substation Name	Circuit Miles	Facilities		Number of Mainline/Feeder/Backbone Outages	*Circuit SAIDI	Circuit SAIFI
					OH	UG			
1261*	Tahoe	790	Topaz	75.5	90.7%	9.3%	8	1338	10.0
7201	Tahoe	603	Squaw Valley	33.0	63.0%	37%	1	1030	1.2

Note: Preferred Metric is Circuit SAIDI

- II. Any circuit appearing on this list of “deficient” WPC circuits that also appeared on the previous year's list would be marked by an asterisk. For each asterisked circuit, each utility shall provide the following information:

- I. An explanation of why it was ranked as a "deficient" circuit, i.e., the value of the metric used to indicate its performance;

The calculated circuit SAIDI for the Topaz 1261 circuit in 2016 was 1,338 customer outage minutes.

- II. A historical record of the metric;

The Topaz 1261 circuit had a SAIDI score of 3,003 customer outage minutes in 2015. The circuit SAIDI score reduced to 1,338 customer outage minutes in 2016.

- III. An explanation of why it was on the deficiency list again;

The 1261 circuit experienced high circuit SAIDI in 2016 due to multiple circuit lockouts, wire slapping during windy conditions, and loss of supply.

- IV. An explanation of what is being done to improve the circuit's future performance and the anticipated timeline for completing those activities (or an explanation why remediation is not being planned); and

Through 2016, CalPeco Electric has invested over \$500,000 to replace aging poles throughout the circuit. Additionally, over \$100,000 has been invested to upgrade and replace conductor in areas that have low capacity, extensive splices, or damage from wire slapping. The conductor upgrade and replacement project continues through 2017 with a budget of \$100,000.

- V. A quantitative description of the utility's expectation for that circuit's future performance.

With a combined total of over \$700,000 invested by the end of 2017 to improve the Topaz 1261 circuit, CalPeco Electric expects the quantity of sustained outages due to wire slapping in windy conditions to be significantly reduced. In 2016, this circuit experienced twelve outages that were suspected wire slapping events and accounted for 780 customer outage minutes.

III. Language to explain how the IOUs' include a cost effectiveness review as part of their respective internal review processes for circuit remediation projects.

I. Definitions of terms, acronyms, limitations, and assumptions;

Definitions:

WPC- Worst Performing Circuits

CB- Circuit Breaker

AR- Automatic re-closer

Assumptions

- Our analysis excludes planned outages and TMED outages

II. A clear explanation of the utility's process to determine the worst performing circuits:

The top 2 Worst Performing Circuits (WPC) are determined based upon the calculated Circuit SAIDI. This index is calculated on sustained outages by taking the total customer minutes of interruption and dividing by the number of customers on the circuit.

III. A clear explanation of the utility's process to determine cost-effective remediation projects. This shall include why the utility may decide to implement a project to address one worst performing circuit issue while deciding to not implement a project to address a different worst performing circuit.

The Regional Engineer presents proposals for reliability improvement projects along with a circuit analysis, cost-benefit analysis, and details on customer impact to the Business Manager, Engineering and Planning Manager, and Vice President of Operations. Collectively, the group determines which projects to approve or suggest alternatives and further analysis.

**6) Top 10 major unplanned power outage events within a reporting year**

- a. The cause of each outage event; and
- b. The location of each outage event.

Rank	Outage Date	Cause	Location	Customer Impact	SAIDI	SAIFI
1	3/13/2016	Loss of Source – External System	Lake Tahoe	6,882	6.21	0.1411
2	10/16/2016	Wind / Trees	Lake Tahoe	4,125	8.80	0.0845
3	10/4/2016	Underground Fault	Lake Tahoe	4,125	21.89	0.0845
4	3/22/2016	Downed Wire	Lake Tahoe	4,125	7.74	0.0845
5	3/13/2016	Car / Pole	Lake Tahoe	3,517	4.87	0.0812
6	1/1/2016	Failed Overhead Hardware	Lake Tahoe	3,500	8.92	0.0717
7	3/1/2016	Trees	Lake Tahoe	3,258	2.07	0.0668
8	6/29/2016	Underground Fault	Lake Tahoe	2,859	4.89	0.0586
9	8/23/2016	Primary Contact – 3 <sup>rd</sup> Party	Lake Tahoe	2,772	3.31	0.0568
10	6/15/2016	Trees	Lake Tahoe	2,732	4.70	0.0560

\*Based on customer impact

**7) Summary list of 2016 TMED per IEEE 1366**

- a. The number of customers without service at periodic intervals for each TMED;
- b. The cause of each Major Event (ME); and
- c. The location of each ME.

TMED as of 2016 = 104.57

CalPeco Electric did not experience an event in 2016 where the daily SAIDI was higher than the calculated TMED. Therefore, CalPeco Electric did not experience any Major Events in 2016 which would be excludable per IEEE 1366.

**8) Historical 10 largest unplanned outage events for the past 10 years\***

\*Based on Customers Affected

Rank	Description	Date	Customers Affected	Longest Interruption (hours)	Customers -hours affected	CPUC Major Event?
1	Loss of Source – External System	3/13/2016	6,882	0.75	5,046.80	No
2	Wind/Trees	10/16/2016	4,125	1.75	7,150.00	No
3	Underground Fault	10/4/2016	4,125	4.31	17,793.30	No
4	Downed Wire	3/22/2016	4,125	1.70	6,294.80	No
5	Car/Pole	3/13/2016	3,517	1.00	3,957.90	No
6	Failed Overhead Hardware/Material	1/1/2016	3,500	5.50	7,250.00	No
7	Trees	3/1/2016	3,258	0.50	1,683.30	No
8	Underground Fault	6/29/2016	2,859	8.42	3,975.10	No
9	Primary Contact – 3 <sup>rd</sup> Party	8/23/2016	2,772	5.15	2,693.25	No
10	Trees	6/15/2016	2,732	8.15	3,822.70	No

Rank	Description	Date	Customers Affected	Longest Interruption (hours)	Customers -hours affected	CPUC Major Event?
1	Storm	4/25/2015	4,120	6.50	12,380.00	No
2	Underground Fault	2/14/2015	3,587	0.50	2,511.00	No
3	Downed Wire	12/11/2015	3,587	10.00	17,251.00	No
4	Trees	2/6/2015	3,548	0.50	1,360.00	No
5	Bird/Animal	5/24/2015	3,000	6.50	12,340.00	No
6	Fire	2/20/2015	3,000	0.50	1,650.00	No
7	Weather/Lightning	7/4/2015	3,000	2.00	5,600.00	No
8	Weather/Lightning	7/7/2015	3,000	0.25	1,000.00	No
9	Operations	8/11/2015	3,000	0.25	750.00	No
10	Weather/Lightning	8/7/2015	3,000	1.75	5,400.00	No

Rank	Description	Date	Customers Affected	Longest Interruption (hours)	Customers -hours affected	CPUC Major Event?
1	NV Energy Outage	9/27/2014	27,046	4.27	115,396.27	Yes
2	Flashing	7/20/2014	26,000	5.12	2,690.45	Yes
3	Tree-Green	12/11/2014	15,853	4.03	63,940.43	No
4	Relay Failure	9/23/2014	8,900	0.22	1,928.33	No
5	Trees	3/11/2014	3,587	1.83	6,521.17	No
6	Weather/Lightning	7/20/2014	3,587	0.75	2,690.25	No
7	Trees	8/30/2014	3,587	0.30	1,195.67	No
8	Trees	1/30/2014	3,548	4.25	2,109.00	No
9	Bird/Animal	8/31/2014	3,548	0.50	1,774.00	No
10	Trees	7/20/2014	3,500	5.00	17,266.67	No



<b>Rank</b>	<b>Description</b>	<b>Date</b>	<b>Customers Affected</b>	<b>Longest Interruption (hours)</b>	<b>Customers -hours affected</b>	<b>CPUC Major Event?</b>
1	Wire Down Transformer	7/4/2013	5,650	9.82	10,816.02	No
2	Tree Trimming	8/14/2013	4,800	2.35	4,334.50	No
3	Car/Pole	10/25/2013	3,548	0.40	1,419.20	No
4	Cable Failure	8/7/2013	3,475	8.50	4,412.50	No
5	Trees	3/14/2013	3,315	0.30	1,049.75	No
6	Hardware Failure	3/6/2013	3,000	8.13	14,740.00	No
7	Weather/Lightning	7/2/2013	3,000	2.10	6,300.00	No
8	Weather/Lightning	7/25/2013	2,042	3.46	911.83	No
9	Bird/Animal	10/5/2013	2,000	4.00	2,108.00	No
10	Unknown Cause	6/30/2013	2,000	0.76	1,533.33	No

<b>Rank</b>	<b>Description</b>	<b>Date</b>	<b>Customers Affected</b>	<b>Longest Interruption (hours)</b>	<b>Customers -hours affected</b>	<b>CPUC Major Event?</b>
1		8/19/2012	8,677	1.08	9,400.08	No
2	Overhead Hardware/Material	11/29/2012	4,200	.067	3,488.33	No
3	Trees	4/1/2012	4,120	12.70	37,471.67	No
4	Hardware Failure	4/13/2012	4,120	2.95	12,154.00	No
5	Trees	5/24/2012	4,120	0.73	3,021.33	No
6	Bird/Animal	6/28/2012	3,587	0.47	1,673.93	No
7	Weather/Lightning	7/23/2012	3,548	1.16	909.50	No
8	Car/Pole	7/16/2012	3,315	8.83	2,724.17	No
9	Bird/Animal	5/11/2012	3,201	2.48	7,949.15	No
10	Bird/Animal	6/25/2012	1,967	5.60	11,015.20	No

Rank	Description	Date	Customers Affected	Longest Interruption (hours)	Customers -hours affected	CPUC Major Event?
1	NV Energy Outage	5/9/2011	24,550	3.02	74,059.17	Yes
2	Relays	2/17/2011	8,005	3.40	12,738.90	No
3	Overcurrent	3/20/2011	4,396	0.98	4,396.00	No
4	Trees	5/25/2011	4,120	10.23	21,658.83	No
5	Trees	11/18/2011	4,120	21.50	15,792.33	No
6	Lateral Fuse	3/16/2011	3,957	2.96	11,739.10	No
7	Bird/Animal	9/24/2011	3,885	0.25	769.50	No
8	Hardware Failure	9/12/2011	3,475	1.12	2,780.42	No
9	Relays	1/25/2011	3,201	1.68	5,388.35	No
10	Trees	6/29/2011	3,200	4.35	11,786.67	No

### 9) Number of customer inquiries on reliability data and the number of days per response

CalPeco Electric received one reliability inquiry in 2016. A response letter was sent out on November 3<sup>rd</sup>, addressing the customer’s question about reliability investments in the Coleville community.

Date Received	Date Responded	Description of Inquiry
10/15/2016	11/3/2016	Inquiring about power outages in the Coleville community, specifically during windy conditions, and what CalPeco Electric is doing to improve the reliability.