PACIFIC GAS AND ELECTRIC COMPANY

2017 ANNUAL ELECTRIC RELIABILITY REPORT
(Per Decision16-01-008)

July 12, 2018

Table of Contents

Executive Summary

PG&E's electric service reliability performance in 2017 was challenged by an unprecedented number of weather events, including severe winter storms that produced a record amount of rainfall, extreme summer heat waves and widespread Northern California wildfires. As a result, PG&E's reliability declined compared to 2016. Even with these significant weather-related events, the company's 2017 SAIDI performance was the fourth best over the past ten years. This is attributed to many factors including PG&E's continued investments in its electric infrastructure, improved emergency operations and response programs, and the company's commitment to integrating innovative technology.

Electric utilities measure reliability in many ways: duration of customer outages, frequency of customer outages, average restoration time, counting only unplanned outages, counting planned outages, excluding unusual events such as major storms (typically referred to as Major Event Days or "MED"), including or excluding certain types of outages, among other distinctions. This report explains the various different measures and includes the various metrics required by CPUC Decision 16-01-008. For purposes of this Executive Summary, PG&E is focusing on metrics that include planned outages, but exclude major event days. These metrics are found in Section 3. PG&E believes these metrics best reflect the typical customer's experience and are common benchmark metrics across the electric utility industry.

Compared to 10 years ago, PG&E has reduced the average annual amount of time customers experienced a sustained outage from 181.5 minutes in 2008 to 113.4 minutes in 2017. This is a 38 percent improvement. In the same period, PG&E also reduced the average number of times customers experienced a sustained outage in a given year from 1.299 to 0.958, a 26 percent improvement. Table 1 below displays improvement in electric reliability from 2008 through 2017.

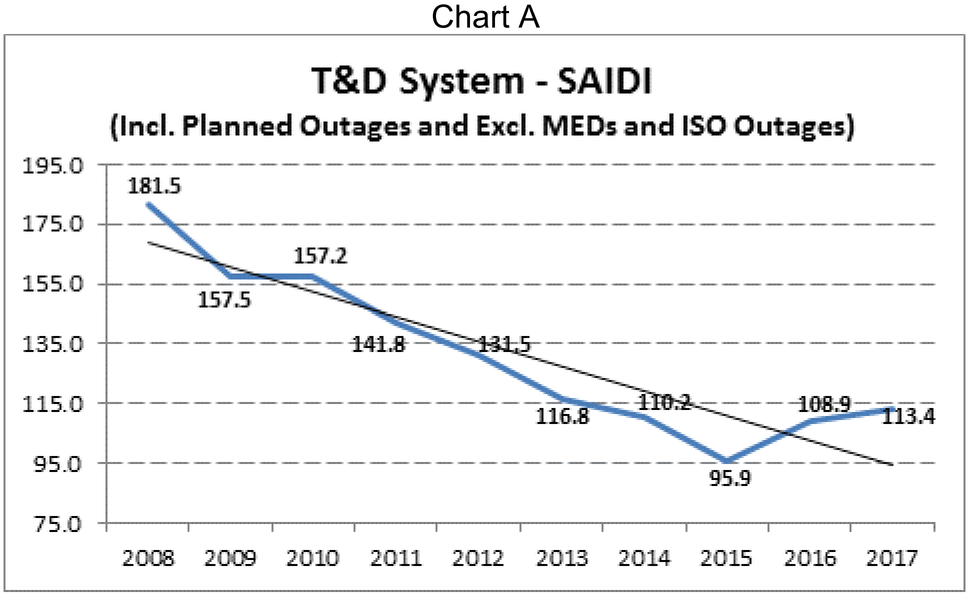
Table 1 – Combined Transmission and Distribution System Indices (2008-2017) (Excludes MED and Independent System Operator (ISO) outages, and includes planned outages)

Year	Major Events Excluded			
	SAIDI	SAIFI	MAIFI	CAIDI
2008	181.5	1.299	1.597	139.7
2009	157.5	1.206	1.398	130.6
2010	157.2	1.207	1.257	130.2
2011	141.8	1.087	1.180	130.5
2012	131.5	1.125	1.805	116.9
2013	116.8	1.065	1.533	109.7
2014	110.2	0.965	1.400	114.2
2015	95.9	0.871	1.594	110.1
2016	108.9	1.021	1.502	106.7
2017	113.4	0.958	1.580	118.3

Chart A below shows the reduction in duration of the amount of time the average PG&E customer experienced a sustained outage or outages each year in graphical form and includes a linear trend line:

2008-2017 Transmission & Distribution System SAIDI Performance Results

Chart A



(Includes Planned Outages, Excludes Major Event Days and ISO Outages)[1]

1 See Table 28 as shown in Section 3.

Not surprisingly, similar trends are mirrored at the division level. Reliability improved in all of PG&E's 19 divisions in 2017 compared to 2008, as shown in the additional 10-year division charts included later in this report.

How PG&E Measures Reliability

PG&E uses four metrics commonly utilized in the electric utility industry to measure reliability for both unplanned and planned outages: the System Average Interruption Duration Index (SAIDI), the System Average Interruption Frequency Index (SAIFI), the Momentary Average Interruption Frequency Index (MAIFI), and the Customer Average Interruption Duration Index (CAIDI).

- SAIDI is the amount of time the average PG&E customer experiences a sustained outage or outages (being without power for more than five minutes) in a given year. **In 2017, PG&E's SAIDI was 113.4 minutes per customer and representing a 38 percent improvement over the last 10 years.**
- SAIFI is the number of times the average PG&E customer experiences a sustained outage in a given year. **In 2017, PG&E's SAIFI was 0.958 for the year and representing a 26 percent improvement over the last 10 years.**
- MAIFI[2] is the number of times the average customer is interrupted by momentary outages each year. Momentary outages are outages lasting 5 minutes or less. **In 2017, PG&E's MAIFI was 1.580 which is higher than 2016 but an improvement from the 2015 MAIFI results.**
- CAIDI is the average duration of sustained outages. It is determined by taking the total outage minutes for all customer outages[3] (SAIDI) and dividing it by the total number of customer outages (SAIFI). **In 2017, PG&E's CAIDI was 118.3 minutes and this value represents a 15 percent improvement over the past 10 years .**

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2 PG&E's outage reporting tools were originally designed to track momentary outages as defined in D96-09-045. Under D.16-01-008, this method of tracking momentary outages corresponds to the $MAIFI_E$ definition contained in the IEEE Guide for Electric Power Distribution Reliability Indices (IEEE 1366 standard), which counts multiple outage interruptions that occur close to each other in time as a single momentary outage event. This metric is equal to the total number of customer momentary interruption events divided by the total number of customers served and does not include the events immediately preceding a sustained interruption.

3 Measures sustained outage events and excludes momentary outage events.

SAIDI	=	Total minutes every customer was without power due to sustained outages	÷	Total number of customers
SAIFI	=	Number of sustained customer outages experienced by all PG&E customers	÷	Total number of customers
CAIDI	=	System Average Interruption Duration Index (SAIDI)	÷	System Average Interruption Frequency Index (SAIFI)
MAIFI	=	Number of customers who experience Momentary Outages	÷	Total number of customers

What's Behind The Reliability Performance?

PG&E continues to integrate a wide range of advanced communications and control technologies throughout its electric grid to enhance the resiliency of the system and to identify and restore power outages more quickly. In the last five years, PG&E has invested more than $15 billion dollars to enhance and harden its electric transmission and distribution system assets.

Some highlights of the technology that has improved reliability include:

New Distribution Control Centers: Since 2014, PG&E has opened three state-of-the-art electric distribution control centers that manage about 107,000 miles of electric distribution power lines throughout Northern and Central California. The third of these – in Rocklin in Placer County – opened in 2016. These facilities are the nerve centers of the grid that deliver energy to the homes and businesses of more than 16 million Californians. The Rocklin, Fresno and Concord centers have enhanced electric reliability for PG&E customers while incorporating clean, renewable energy into the grid.

Smart Grid: PG&E continues to install advanced automated technology on power lines throughout its service area. This technology can automatically "self-heal" the grid by re-routing the flow of electricity around a damaged power line and effectively restore power to the majority of impacted customers within minutes. These systems have been installed on more than 25 percent of PG&E's electrical distribution circuits, helping the company avoid more than 271 million customer outage minutes and saving more than 2.7 million customers from a sustained outage since the program began in 2012. Other advances, including line sensors that help pinpoint the specific location of an outage, continue to be integrated into the system.

What follows is the 2017 Electric Reliability Report for Pacific Gas and Electric Company as required by Decision 16-01-008. This report includes system reliability data based on the Institute of Electrical and Electronic Engineers (IEEE) Standard 1366 methodology, as required by D.16-01-008. The report includes very specific details, including reliability numbers for each of PG&E's 19 divisions. It also includes a list of worst performing circuits in Section 5.

Introduction

This is the 2017 Electric Reliability Report for Pacific Gas and Electric Company as required by Decision 16-01-008. This report includes system reliability data based on the Institute of Electrical and Electronic Engineers (IEEE) Standard 1366 methodology. This report consists of the following:

Section	Description
1.	System Indices For The Last 10 Years (2008-2017)
2.	Division Reliability Indices (2008-2017) Including and Excluding Major Event Days (MED)
3.	System and Division Indices Based on IEEE 1366 (2008-2017) Including Planned Outages and Including and Excluding MED
4.	Service Territory Map including Divisions
5.	Top 1% of Worst Performing Circuits (WPC) excluding MED
6.	Top 10 Major Unplanned Power Outage Events in 2017
7.	Summary List of MED per IEEE 1366
8.	Historical Ten Largest Unplanned Outage Events (2008-2017)
9.	The Number of Customer Inquiries on Reliability Data and the Number of Days per Response
10.	Appendix A – Definitions, Acronyms and Abbreviations

As noted in our previous two reports, PG&E implemented a new outage reporting system that included the data conversion of its legacy (DART/OUTAGE) database. This new system consists of two main components that are typically referred to as PG&E's Integrated Logging and Information System (ILIS) and its Operations Database (ODB), also called ILIS-ODB for short. ILIS models the actual electric switching operations reported during the circuit restoration process (which is useful for determining accurate customer outage minutes for calculating SAIDI and CAIDI). PG&E maintains account specific information for customers affected by outages that are recorded and stored in PG&E's ODB. This system tracks outages at various levels (generation, transmission, substation, primary distribution, and individual transformers) and the most current outage data was used to compile the information contained in this report.

Distribution operators log outage information in PG&E's ILIS tool, which uses minutes as the smallest time increment to record the outage start, switching operations, and outage end times. Smart Meters measure outage duration in seconds and are used to automatically report momentary outages beyond non-SCADA auto-reclosing devices. Momentary outages for SCADA related and other events are logged by distribution operators using the ILIS tool, which does not have the benefit of measuring the outage duration in seconds. Consequently and although infrequent, it is possible that an outage duration is recorded as 5 minutes when the actual outage duration was up to 5 minutes and 59 seconds. In 2015, PG&E updated its reporting tools and process to help minimize this occurrence and allow the operator in these situations to log this event as a 6 minute sustained outage.

We have added a list of Definitions, Acronyms and Abbreviations at the end as Appendix A to help the reader who is not familiar with the jargon used in reliability reporting.

1. System Indices For The last Ten Years

a. System Indices (2008-2017)

Table 2 lists the required SAIDI, SAIFI, MAIFI[4], and CAIDI with MED Included and Excluded as directed in Appendix B of D.16-01-008:

Table 2 – Combine Transmission and Distribution System Indices (2008-2017) (Excludes planned and ISO outages)

Year	Major Events Included				Major Events Excluded			
	SAIDI	SAIFI	MAIFI	CAIDI	SAIDI	SAIFI	MAIFI	CAIDI
2008	424.0	1.575	1.831	269.2	156.9	1.208	1.594	129.9
2009	211.8	1.316	1.544	160.9	134.3	1.119	1.395	120.0
2010	249.5	1.394	1.488	179.0	130.2	1.106	1.253	117.7
2011	278.8	1.267	1.483	219.9	109.7	0.966	1.172	113.6
2012	141.4	1.125	1.923	125.7	111.2	1.031	1.802	107.8
2013	117.8	1.065	1.638	110.6	96.4	0.964	1.529	100.0
2014	133.8	1.044	1.565	128.2	92.8	0.879	1.393	105.6
2015	131.8	0.967	1.812	136.3	80.7	0.787	1.585	102.5
2016	106.6	1.021	1.605	104.5	93.7	0.940	1.495	99.8
2017	357.7	1.466	2.416	244.1	97.3	0.878	1.577	110.8

Note: Includes Generation, Transmission, Substation, and Distribution related outages

4 On November 18, 2011 the EON recording system was removed from service. Momentary outage data is now being collected from SCADA devices and through the use of Smart Meters. Data collection from the Smart Meters is more effective than the previous EON system since Smart Meters don't rely on customer volunteers having EON devices connected inside their buildings. The increased frequency of momentary outages recorded does not necessarily indicate an actual increase in momentary outages in 2012 and after as compared to prior years, but is a result of this improved method for recording momentary outages.

i. Distribution System Indices

Table 3 – Distribution System Indices (2008-2017)
(Excludes planned outages, transmission, substation, and generation related outages)

Year	Major Events Included			Major Events Excluded		
	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI
2008	374.9	1.363	275.0	132.8	1.041	127.5
2009	191.2	1.151	166.1	119.4	0.974	122.5
2010	210.8	1.164	181.1	108.2	0.921	117.5
2011	239.2	1.041	229.7	92.8	0.796	116.5
2012	120.1	0.959	125.2	96.3	0.882	109.2
2013	100.1	0.869	115.2	84.8	0.804	105.5
2014	119.7	0.926	129.2	85.2	0.780	109.2
2015	99.4	0.804	123.6	72.5	0.689	105.3
2016	95.4	0.895	106.6	83.0	0.818	101.5
2017	302.8	1.274	237.7	90.0	0.792	113.6

Note: PG&E defines its distribution system as line voltage less than 60 kilovolts (KV)

The MAIFI information is not included in Table 3 since non-SCADA automatic recording devices (EON or Smart Meters) do not distinguish between transmission system outages or distribution system outages.

ii. Transmission System Indices

Table 4 – Transmission System Indices (2008-2017)
(Excludes planned outages, distribution, and generation related outages)
(Includes substation outages)

Year	Major Events Included			Major Events Excluded		
	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI
2008	48.8	0.211	231.0	23.8	0.166	143.6
2009	20.6	0.165	124.8	14.9	0.144	103.4
2010	38.7	0.230	168.2	22.0	0.186	118.4
2011	39.5	0.224	176.2	16.9	0.168	100.6
2012	21.3	0.165	128.7	14.8	0.149	99.6
2013	13.1	0.168	77.7	11.7	0.160	72.6
2014	14.1	0.116	121.0	7.5	0.097	77.8
2015	32.1	0.160	201.0	7.8	0.095	82.7
2016	11.2	0.125	89.5	10.7	0.121	88.3
2017	54.9	0.191	286.9	7.3	0.085	85.4

Note: PG&E defines its transmission system as line voltage 60 kilovolts (KV) and above

The MAIFI information is not included in Table 4 since non-SCADA automatic recording devices do not distinguish between transmission system outages or distribution system outages.

b. Separate System Charts of SAIDI, SAIFI, MAIFI, and CAIDI for the past 10 years with linear trend line (MED Excluded)

i. SAIDI Performance Results (MED Excluded)

Chart 1: Transmission & Distribution System SAIDI Indices

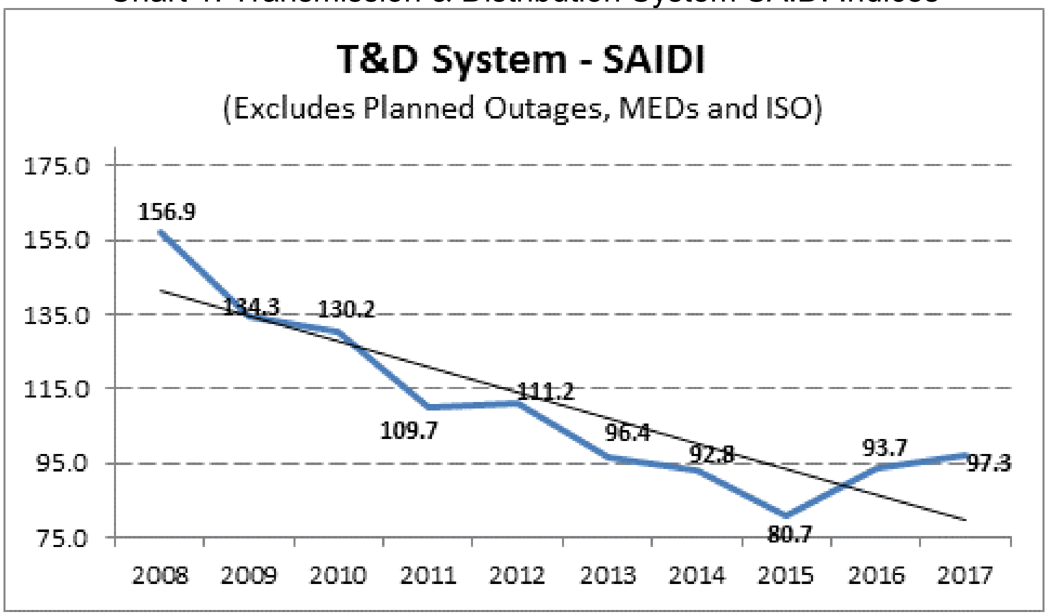


Chart 2: Distribution System SAIDI Indices

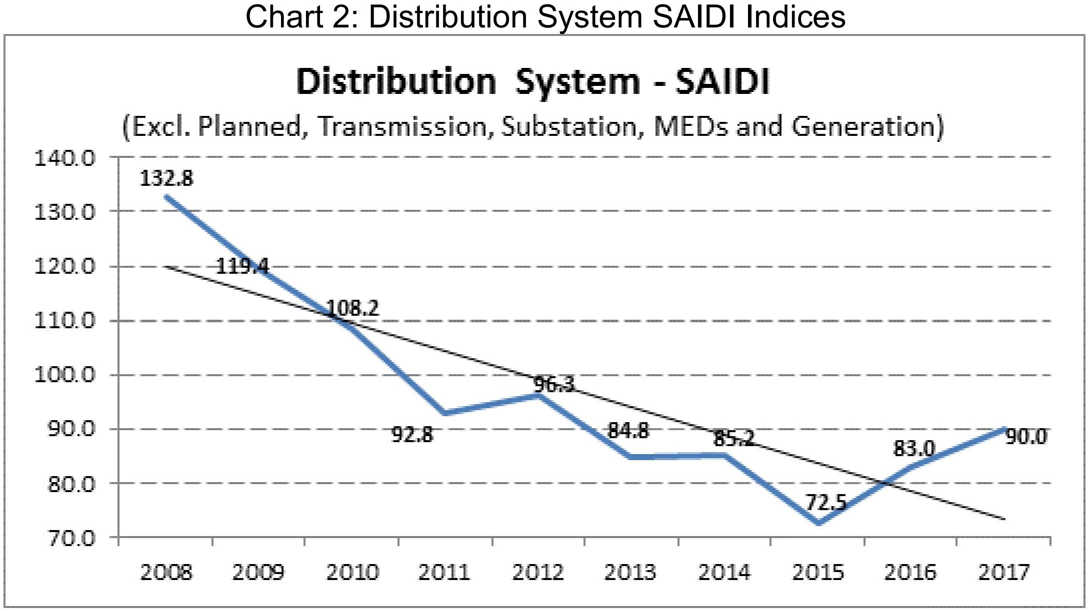
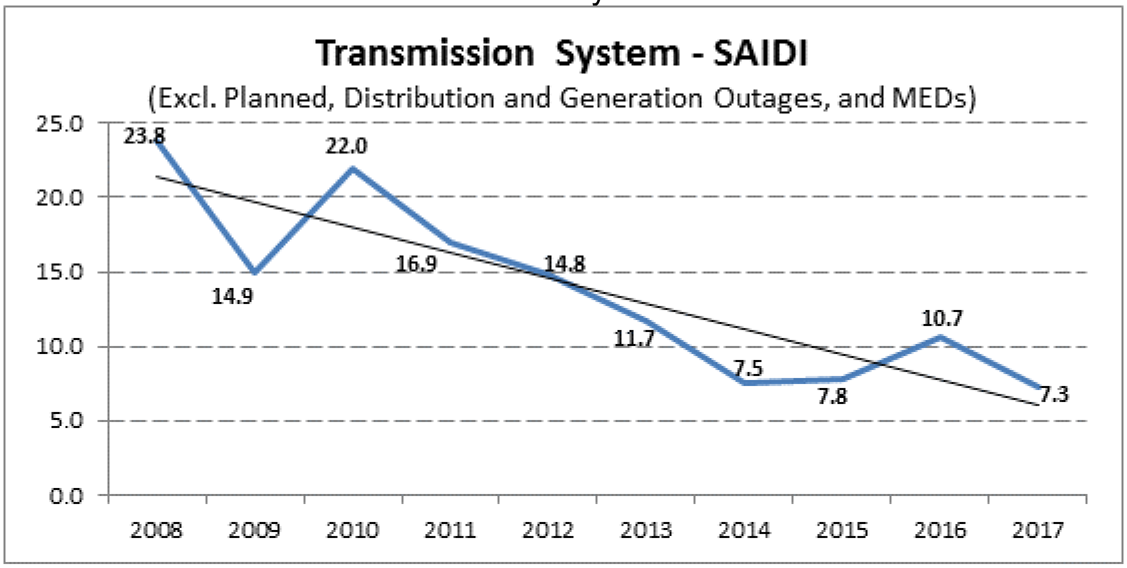


Chart 3: Transmission System SAIDI Indices



(Includes substation outages)

ii. SAIFI Performance Results (MED Excluded)

Chart 4: Transmission & Distribution System SAIFI Indices

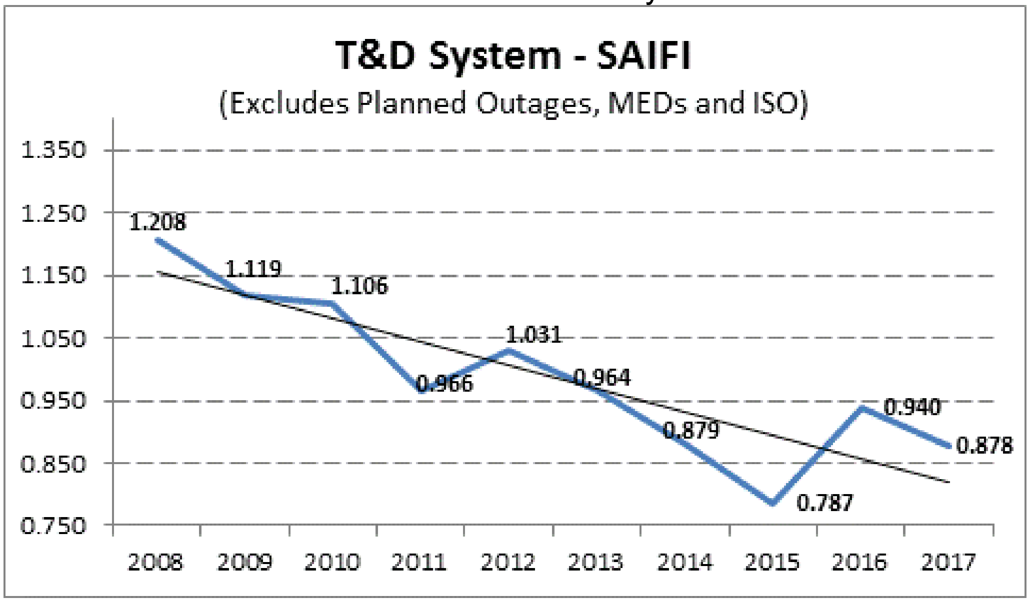


Chart 5: Distribution System SAIFI Indices

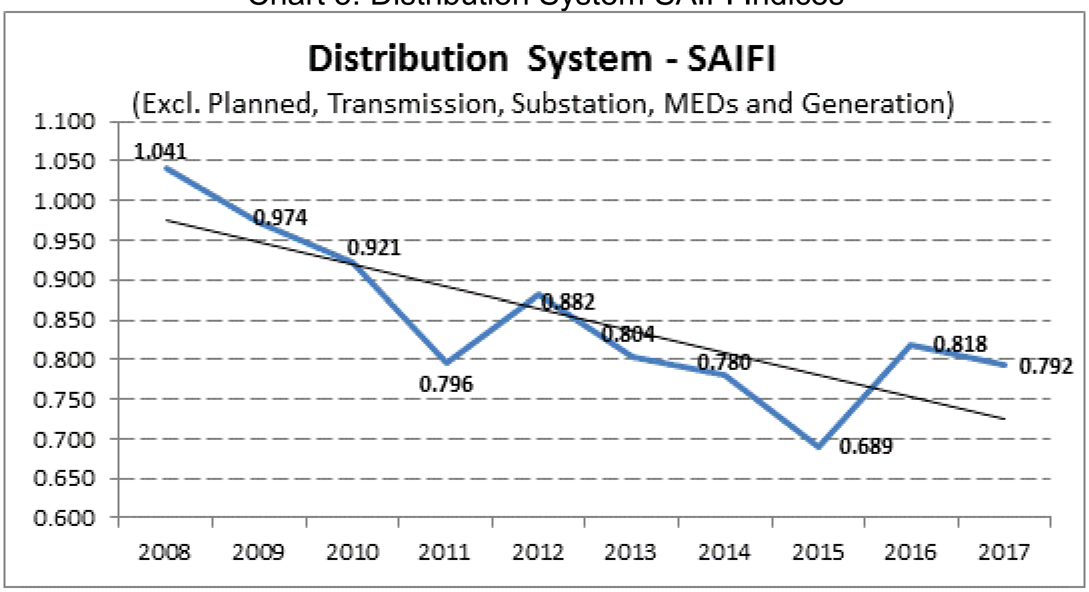
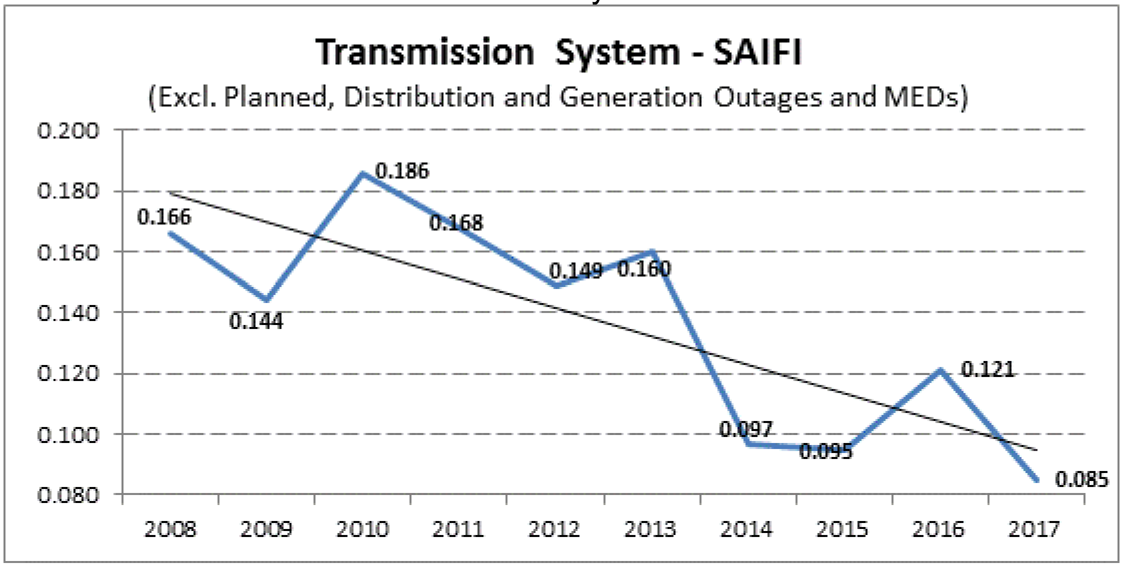


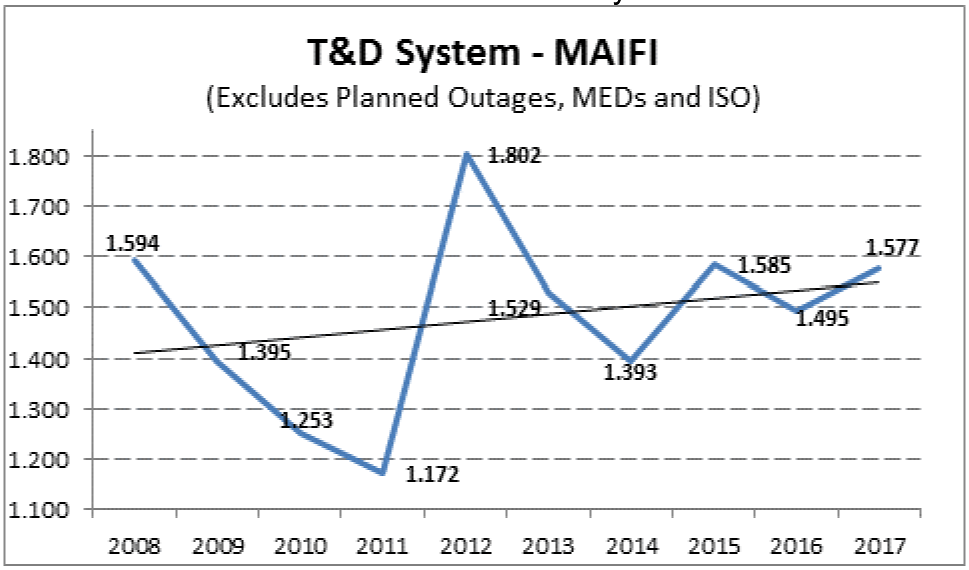
Chart 6: Transmission System SAIFI Indices



(Includes substation outages)

iii. MAIFI[5] Performance Results (MED Excluded)

Chart 7: Transmission & Distribution System MAIFI Indices



5 See footnote 4.

iv. CAIDI Performance Results (MED Excluded)

Chart 8: Transmission & Distribution System CAIDI Indices

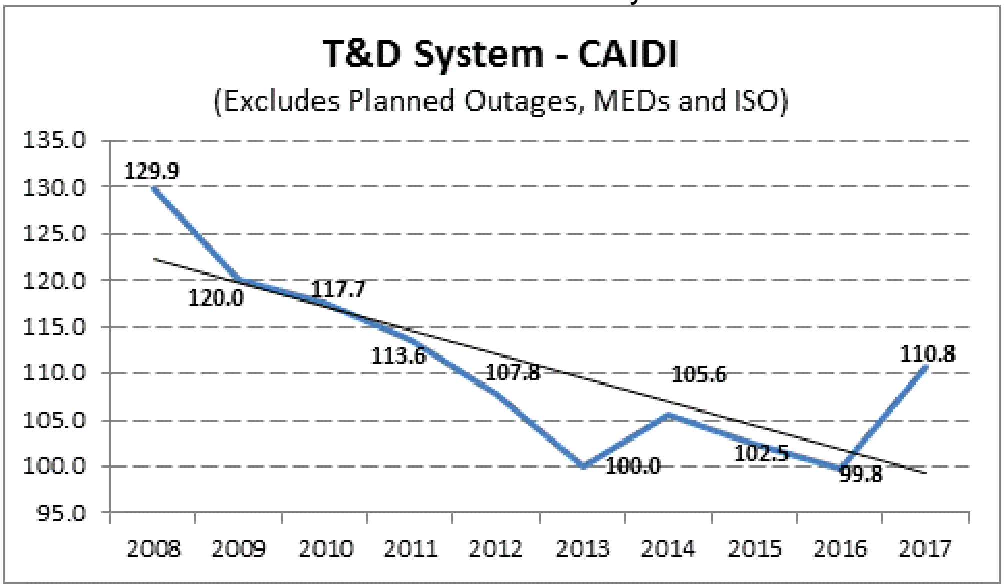


Chart 9: Distribution System CAIDI Indices

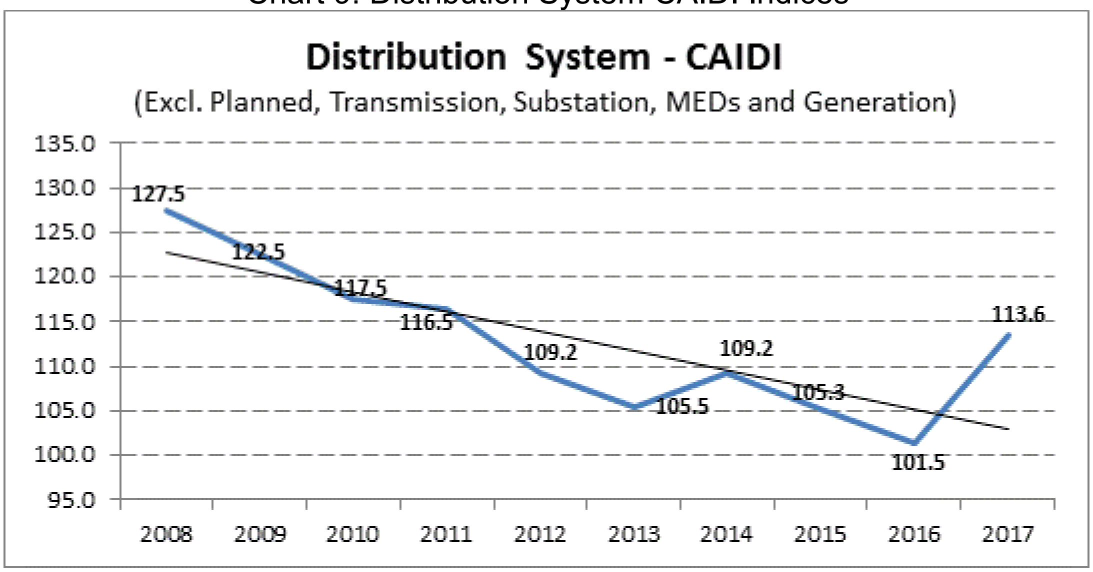
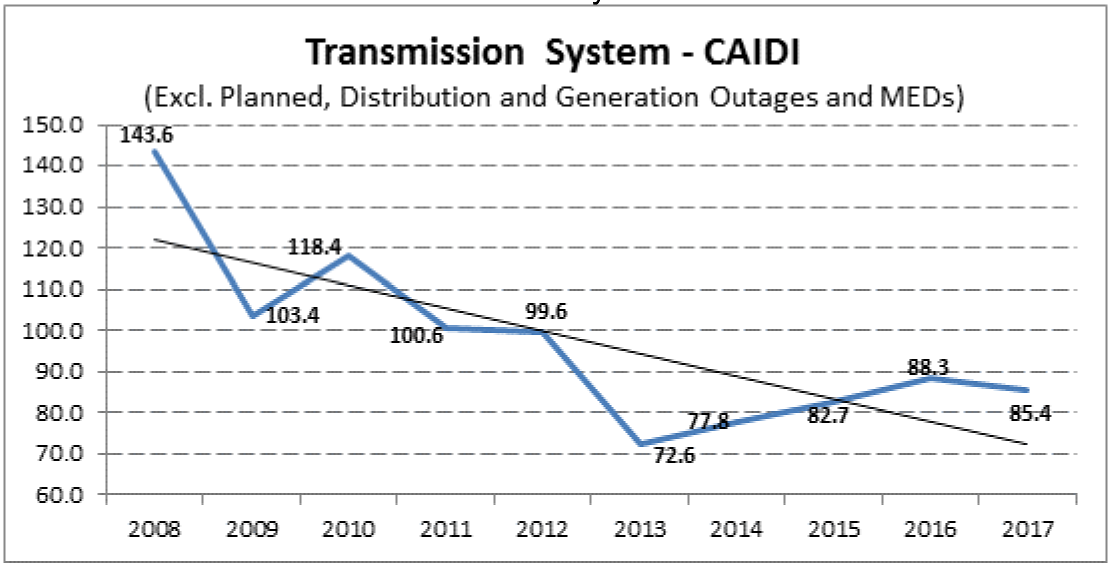


Chart 10: Transmission System CAIDI Indices



(Includes substation outages)

2. Division Reliability Indices for the past 10 years including and excluding MED

a. Division Reliability Indices for the past 10 years excluding ISO and planned outages and including Major Event Days

Table 5: Division Reliability Indices

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
CENTRAL COAST	2008	831.3	2.355	2.746	353.0
CENTRAL COAST	2009	451.9	2.371	3.206	190.5
CENTRAL COAST	2010	390.6	1.977	3.948	197.6
CENTRAL COAST	2011	496.0	1.985	2.084	249.9
CENTRAL COAST	2012	152.0	1.311	2.368	115.9
CENTRAL COAST	2013	127.2	1.321	2.035	96.2
CENTRAL COAST	2014	204.4	1.358	2.130	150.5
CENTRAL COAST	2015	253.0	1.289	2.173	196.3
CENTRAL COAST	2016	188.6	1.637	2.734	115.2
CENTRAL COAST	2017	807.8	2.462	4.956	328.2
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
DE ANZA	2008	270.6	1.311	1.687	206.3
DE ANZA	2009	163.7	0.992	1.655	165.0
DE ANZA	2010	172.8	1.154	1.437	149.8
DE ANZA	2011	81.6	0.718	1.489	113.6
DE ANZA	2012	82.8	0.718	1.223	115.3
DE ANZA	2013	78.8	0.817	1.186	96.4
DE ANZA	2014	114.2	1.028	1.307	111.1
DE ANZA	2015	63.4	0.594	1.281	106.7
DE ANZA	2016	109.4	0.914	1.423	119.7
DE ANZA	2017	315.4	1.503	2.037	209.8
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
DIABLO	2008	202.5	1.500	2.130	135.0
DIABLO	2009	159.4	1.398	1.196	114.1
DIABLO	2010	119.9	1.386	1.313	86.5
DIABLO	2011	78.7	0.929	1.402	84.6
DIABLO	2012	105.4	1.225	1.405	86.0
DIABLO	2013	83.5	1.016	1.304	82.2
DIABLO	2014	86.2	0.965	1.388	89.3
DIABLO	2015	83.7	0.985	1.873	85.0
DIABLO	2016	79.0	1.016	1.723	77.8
DIABLO	2017	140.7	1.218	2.393	115.5
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
EAST BAY	2008	161.6	1.077	0.863	150.1
EAST BAY	2009	138.1	1.259	0.894	109.7
EAST BAY	2010	126.3	1.089	0.757	116.0
EAST BAY	2011	104.5	0.963	1.079	108.6
EAST BAY	2012	110.9	1.364	1.369	81.3
EAST BAY	2013	119.5	0.999	1.282	119.6
EAST BAY	2014	83.6	0.878	1.495	95.2
EAST BAY	2015	59.6	0.723	1.179	82.5
EAST BAY	2016	128.2	1.215	1.230	105.5
EAST BAY	2017	147.3	1.217	2.078	121.1

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
FRESNO	2008	196.3	1.641	1.797	119.6
FRESNO	2009	154.7	1.357	1.899	114.0
FRESNO	2010	175.3	1.273	1.955	137.7
FRESNO	2011	165.8	1.116	2.022	148.6
FRESNO	2012	100.8	1.064	2.361	94.7
FRESNO	2013	96.8	1.098	2.110	88.2
FRESNO	2014	84.5	1.008	1.774	83.8
FRESNO	2015	100.3	1.151	2.057	87.2
FRESNO	2016	85.1	1.129	1.974	75.4
FRESNO	2017	102.5	0.986	1.917	104.0
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
HUMBOLDT	2008	1,005.1	2.730	3.365	368.1
HUMBOLDT	2009	240.7	1.709	2.483	140.9
HUMBOLDT	2010	575.3	2.512	1.719	229.0
HUMBOLDT	2011	543.1	1.956	2.279	277.6
HUMBOLDT	2012	339.5	1.736	4.665	195.6
HUMBOLDT	2013	302.1	1.382	2.650	218.6
HUMBOLDT	2014	288.5	1.354	1.954	213.0
HUMBOLDT	2015	695.2	2.234	2.736	311.2
HUMBOLDT	2016	219.0	1.627	2.066	134.6
HUMBOLDT	2017	919.6	2.362	3.541	389.4
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
KERN	2008	175.9	1.448	1.212	121.5
KERN	2009	112.3	1.206	1.493	93.2
KERN	2010	137.4	1.197	1.567	114.8
KERN	2011	169.5	1.286	1.621	131.8
KERN	2012	91.0	0.995	1.222	91.4
KERN	2013	92.4	1.103	1.196	83.8
KERN	2014	113.2	1.114	1.843	101.6
KERN	2015	92.0	0.947	1.925	97.1
KERN	2016	89.8	0.925	2.109	97.1
KERN	2017	138.9	1.072	2.133	129.6
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
LOS PADRES	2008	236.8	1.847	3.067	128.2
LOS PADRES	2009	179.9	1.277	1.713	140.9
LOS PADRES	2010	276.9	1.737	2.052	159.4
LOS PADRES	2011	135.4	1.229	2.195	110.1
LOS PADRES	2012	98.2	1.036	1.632	94.7
LOS PADRES	2013	215.5	1.506	1.094	143.1
LOS PADRES	2014	187.0	1.214	1.378	154.0
LOS PADRES	2015	132.2	0.844	1.783	156.6
LOS PADRES	2016	114.1	1.171	1.676	97.4
LOS PADRES	2017	315.7	1.574	2.211	200.6

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
MISSION	2008	109.1	0.999	1.515	109.1
MISSION	2009	93.6	0.786	0.902	119.0
MISSION	2010	111.7	0.998	0.785	112.0
MISSION	2011	74.6	0.833	0.692	89.6
MISSION	2012	93.9	0.907	0.885	103.5
MISSION	2013	74.0	0.804	0.837	92.0
MISSION	2014	75.9	0.745	0.826	101.8
MISSION	2015	62.6	0.596	1.150	105.1
MISSION	2016	82.7	0.763	0.985	108.4
MISSION	2017	137.9	1.011	1.582	136.4
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
NORTH BAY	2008	564.3	1.681	1.979	335.7
NORTH BAY	2009	155.0	1.232	1.010	125.9
NORTH BAY	2010	159.1	1.232	1.401	129.1
NORTH BAY	2011	203.2	1.339	1.223	151.8
NORTH BAY	2012	140.4	0.920	1.949	152.6
NORTH BAY	2013	114.0	0.995	1.730	114.6
NORTH BAY	2014	234.6	1.261	2.710	186.1
NORTH BAY	2015	135.4	1.059	2.161	127.9
NORTH BAY	2016	110.2	0.911	1.449	121.0
NORTH BAY	2017	733.3	1.761	2.946	416.5
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
NORTH VALLEY	2008	1,550.2	2.382	4.194	650.8
NORTH VALLEY	2009	281.6	1.486	3.143	189.5
NORTH VALLEY	2010	552.3	1.842	1.980	299.8
NORTH VALLEY	2011	625.2	2.032	2.134	307.7
NORTH VALLEY	2012	513.9	1.882	2.950	273.0
NORTH VALLEY	2013	139.7	1.094	1.962	127.8
NORTH VALLEY	2014	173.2	1.166	1.793	148.6
NORTH VALLEY	2015	479.6	1.787	2.528	268.3
NORTH VALLEY	2016	175.0	1.265	2.173	138.4
NORTH VALLEY	2017	398.6	1.672	3.208	238.5
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
PENINSULA	2008	425.0	1.840	2.044	231.0
PENINSULA	2009	123.6	1.088	0.890	113.7
PENINSULA	2010	164.1	1.601	1.449	102.5
PENINSULA	2011	112.6	1.170	0.964	96.2
PENINSULA	2012	101.3	1.145	1.709	88.5
PENINSULA	2013	94.8	0.874	1.333	108.4
PENINSULA	2014	99.3	1.060	1.367	93.7
PENINSULA	2015	76.2	0.867	1.798	87.9
PENINSULA	2016	87.1	0.986	1.383	88.3
PENINSULA	2017	167.0	1.328	2.550	125.7

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SACRAMENTO	2008	861.8	1.922	2.285	448.5
SACRAMENTO	2009	251.2	1.387	1.833	181.1
SACRAMENTO	2010	193.1	1.104	1.434	175.0
SACRAMENTO	2011	182.6	1.182	1.918	154.5
SACRAMENTO	2012	153.9	1.330	2.152	115.7
SACRAMENTO	2013	98.9	0.969	1.713	102.1
SACRAMENTO	2014	110.2	0.899	1.452	122.6
SACRAMENTO	2015	92.4	0.894	1.771	103.3
SACRAMENTO	2016	99.4	1.035	1.839	96.1
SACRAMENTO	2017	283.0	1.870	3.298	151.3
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SAN FRANCISCO	2008	155.9	0.891	0.272	175.1
SAN FRANCISCO	2009	77.8	0.823	0.136	94.5
SAN FRANCISCO	2010	56.4	0.704	0.097	80.2
SAN FRANCISCO	2011	50.1	0.570	0.215	88.0
SAN FRANCISCO	2012	52.4	0.611	1.051	85.8
SAN FRANCISCO	2013	58.1	0.656	0.333	88.6
SAN FRANCISCO	2014	131.1	0.782	0.351	167.6
SAN FRANCISCO	2015	36.1	0.521	0.537	69.3
SAN FRANCISCO	2016	40.7	0.537	0.397	75.8
SAN FRANCISCO	2017	116.4	0.860	0.552	135.4
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SAN JOSE	2008	178.9	1.032	1.174	173.5
SAN JOSE	2009	89.7	0.854	0.817	105.1
SAN JOSE	2010	103.7	0.920	0.607	112.6
SAN JOSE	2011	113.8	0.973	0.808	117.0
SAN JOSE	2012	85.2	0.830	0.985	102.6
SAN JOSE	2013	100.2	0.962	1.036	104.1
SAN JOSE	2014	103.2	0.970	1.070	106.4
SAN JOSE	2015	75.6	0.763	1.151	99.1
SAN JOSE	2016	68.9	0.678	1.204	101.5
SAN JOSE	2017	179.8	1.241	1.962	144.8
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SIERRA	2008	1,199.3	2.239	2.028	535.6
SIERRA	2009	819.7	2.100	1.501	390.4
SIERRA	2010	754.7	2.289	1.567	329.7
SIERRA	2011	1,012.3	2.195	2.759	461.1
SIERRA	2012	244.0	1.478	3.228	165.2
SIERRA	2013	158.4	1.391	3.242	113.8
SIERRA	2014	195.1	1.399	2.362	139.5
SIERRA	2015	181.9	1.274	3.150	142.8
SIERRA	2016	174.3	1.248	1.892	139.6
SIERRA	2017	620.1	2.076	3.187	298.7

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SONOMA	2008	453.7	1.387	1.175	327.2
SONOMA	2009	183.7	1.250	1.574	147.0
SONOMA	2010	205.2	1.384	1.018	148.3
SONOMA	2011	246.4	1.288	1.529	191.3
SONOMA	2012	208.4	1.107	2.032	188.3
SONOMA	2013	183.6	1.127	2.536	163.0
SONOMA	2014	214.8	1.250	2.069	171.9
SONOMA	2015	119.1	0.868	1.992	137.3
SONOMA	2016	95.4	0.834	1.610	114.3
SONOMA	2017	1,850.1	1.951	2.951	948.3
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
STOCKTON	2008	284.7	1.547	2.210	184.1
STOCKTON	2009	410.7	1.781	3.143	230.6
STOCKTON	2010	386.3	1.710	1.603	225.8
STOCKTON	2011	473.5	1.748	1.200	271.0
STOCKTON	2012	164.9	1.163	2.099	141.8
STOCKTON	2013	116.0	1.455	2.144	79.7
STOCKTON	2014	126.0	0.848	1.468	148.5
STOCKTON	2015	124.5	1.035	2.243	120.3
STOCKTON	2016	100.0	0.994	1.787	100.6
STOCKTON	2017	271.1	1.627	1.946	166.6
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
YOSEMITE	2008	318.3	1.732	1.625	183.7
YOSEMITE	2009	261.5	1.477	1.721	177.1
YOSEMITE	2010	711.1	2.013	3.166	353.3
YOSEMITE	2011	1,172.0	1.975	2.642	593.4
YOSEMITE	2012	147.7	1.303	4.176	113.3
YOSEMITE	2013	189.8	1.329	3.463	142.8
YOSEMITE	2014	135.6	1.281	2.677	105.9
YOSEMITE	2015	112.4	1.072	3.095	104.8
YOSEMITE	2016	129.9	1.234	2.161	105.2
YOSEMITE	2017	310.8	1.720	3.097	180.7

b. Division Reliability Indices for the past 10 years excluding planned outages, ISO outages and Major Event Days

Table 6: Division reliability Indices

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
CENTRAL COAST	2008	253.8	1.707	2.363	148.7
CENTRAL COAST	2009	223.2	1.953	2.991	114.3
CENTRAL COAST	2010	171.0	1.506	2.933	113.6
CENTRAL COAST	2011	155.7	1.501	1.588	103.7
CENTRAL COAST	2012	137.4	1.239	2.190	110.9
CENTRAL COAST	2013	121.0	1.290	1.960	93.8
CENTRAL COAST	2014	127.1	1.090	1.835	116.5
CENTRAL COAST	2015	102.0	0.847	1.844	120.4
CENTRAL COAST	2016	166.1	1.471	2.480	112.9
CENTRAL COAST	2017	146.3	1.293	2.899	113.1
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
DE ANZA	2008	109.0	0.983	1.459	110.9
DE ANZA	2009	109.3	0.850	1.587	128.6
DE ANZA	2010	116.3	0.941	1.167	123.6
DE ANZA	2011	62.0	0.632	1.181	98.2
DE ANZA	2012	74.6	0.668	1.109	111.7
DE ANZA	2013	77.1	0.808	1.151	95.4
DE ANZA	2014	90.0	0.892	1.211	100.9
DE ANZA	2015	51.2	0.476	1.171	107.6
DE ANZA	2016	87.2	0.743	1.346	117.3
DE ANZA	2017	97.9	0.985	1.352	99.4
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
DIABLO	2008	139.9	1.378	1.950	101.5
DIABLO	2009	145.1	1.304	1.157	111.2
DIABLO	2010	104.3	1.234	1.220	84.5
DIABLO	2011	66.8	0.801	1.243	83.4
DIABLO	2012	98.9	1.182	1.367	83.7
DIABLO	2013	80.8	0.995	1.243	81.2
DIABLO	2014	70.0	0.872	1.240	80.3
DIABLO	2015	73.8	0.860	1.666	85.8
DIABLO	2016	76.5	1.003	1.688	76.3
DIABLO	2017	78.0	0.876	1.775	89.1
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
EAST BAY	2008	101.5	0.905	0.809	112.1
EAST BAY	2009	124.3	1.161	0.847	107.1
EAST BAY	2010	90.5	0.871	0.681	103.8
EAST BAY	2011	88.1	0.850	0.849	103.7
EAST BAY	2012	100.7	1.268	1.300	79.4
EAST BAY	2013	63.2	0.818	1.171	77.3
EAST BAY	2014	67.3	0.758	1.279	88.8
EAST BAY	2015	45.0	0.586	1.085	76.9
EAST BAY	2016	101.4	1.060	1.067	95.6
EAST BAY	2017	73.8	0.903	1.608	81.7

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
FRESNO	2008	171.6	1.514	1.740	113.3
FRESNO	2009	138.0	1.227	1.755	112.4
FRESNO	2010	114.9	1.054	1.847	109.0
FRESNO	2011	82.5	0.816	1.689	101.2
FRESNO	2012	99.3	1.042	2.324	95.3
FRESNO	2013	94.2	1.066	2.070	88.4
FRESNO	2014	82.3	0.990	1.702	83.1
FRESNO	2015	70.0	0.849	1.829	82.4
FRESNO	2016	83.4	1.107	1.951	75.3
FRESNO	2017	72.3	0.799	1.592	90.5
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
HUMBOLDT	2008	394.8	1.958	2.921	201.7
HUMBOLDT	2009	221.4	1.572	2.342	140.9
HUMBOLDT	2010	403.0	2.125	1.538	189.6
HUMBOLDT	2011	227.0	1.450	1.885	156.6
HUMBOLDT	2012	278.1	1.549	4.341	179.5
HUMBOLDT	2013	208.3	1.161	2.435	179.4
HUMBOLDT	2014	212.5	1.204	1.822	176.5
HUMBOLDT	2015	276.3	1.621	2.423	170.5
HUMBOLDT	2016	202.6	1.527	2.006	132.7
HUMBOLDT	2017	275.1	1.306	2.311	210.6
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
KERN	2008	138.9	1.229	1.075	113.0
KERN	2009	101.0	1.134	1.398	89.1
KERN	2010	120.4	1.075	1.409	112.0
KERN	2011	112.1	0.991	1.344	113.1
KERN	2012	89.9	0.977	1.222	92.0
KERN	2013	88.3	1.046	1.114	84.4
KERN	2014	83.7	0.952	1.619	87.9
KERN	2015	80.4	0.862	1.850	93.2
KERN	2016	89.2	0.909	2.103	98.1
KERN	2017	78.1	0.733	1.563	106.5
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
LOS PADRES	2008	138.0	1.387	2.722	99.5
LOS PADRES	2009	102.3	1.012	1.322	101.1
LOS PADRES	2010	110.5	1.152	1.730	95.9
LOS PADRES	2011	89.9	0.969	1.666	92.7
LOS PADRES	2012	97.6	1.034	1.625	94.4
LOS PADRES	2013	89.7	0.736	0.950	121.8
LOS PADRES	2014	95.6	1.019	1.159	93.8
LOS PADRES	2015	72.2	0.687	1.408	105.1
LOS PADRES	2016	112.3	1.146	1.675	98.0
LOS PADRES	2017	106.7	0.944	1.518	113.0

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
MISSION	2008	82.3	0.868	1.425	94.8
MISSION	2009	87.1	0.721	0.875	120.7
MISSION	2010	102.0	0.920	0.713	110.9
MISSION	2011	63.1	0.740	0.627	85.2
MISSION	2012	91.2	0.881	0.884	103.4
MISSION	2013	68.3	0.735	0.776	92.9
MISSION	2014	65.1	0.666	0.776	97.7
MISSION	2015	56.7	0.543	1.054	104.4
MISSION	2016	72.7	0.702	0.939	103.7
MISSION	2017	60.1	0.602	1.090	99.9
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
NORTH BAY	2008	157.2	1.157	1.777	135.9
NORTH BAY	2009	112.3	1.054	0.894	106.6
NORTH BAY	2010	131.3	1.035	1.295	126.8
NORTH BAY	2011	111.1	1.081	1.087	102.8
NORTH BAY	2012	109.7	0.791	1.647	138.8
NORTH BAY	2013	101.8	0.909	1.455	111.9
NORTH BAY	2014	114.0	0.885	2.495	128.8
NORTH BAY	2015	97.4	0.904	1.977	107.8
NORTH BAY	2016	83.9	0.758	1.223	110.7
NORTH BAY	2017	148.5	0.955	1.866	155.5
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
NORTH VALLEY	2008	313.4	1.666	3.448	188.1
NORTH VALLEY	2009	203.8	1.272	3.010	160.2
NORTH VALLEY	2010	156.9	1.219	1.815	128.7
NORTH VALLEY	2011	161.2	1.217	1.558	132.4
NORTH VALLEY	2012	223.2	1.503	2.578	148.5
NORTH VALLEY	2013	119.3	1.036	1.904	115.1
NORTH VALLEY	2014	111.1	0.957	1.537	116.1
NORTH VALLEY	2015	132.8	1.062	1.930	125.0
NORTH VALLEY	2016	146.4	1.128	1.937	129.8
NORTH VALLEY	2017	112.3	0.863	2.052	130.2
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
PENINSULA	2008	122.3	1.154	1.770	106.0
PENINSULA	2009	80.5	0.850	0.767	94.8
PENINSULA	2010	118.4	1.360	1.035	87.0
PENINSULA	2011	83.7	1.023	0.807	81.8
PENINSULA	2012	87.0	0.999	1.527	87.1
PENINSULA	2013	70.7	0.774	1.124	91.3
PENINSULA	2014	77.8	0.900	1.166	86.5
PENINSULA	2015	60.5	0.752	1.601	80.4
PENINSULA	2016	78.8	0.905	1.197	87.2
PENINSULA	2017	61.5	0.640	1.310	96.0

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SACRAMENTO	2008	186.2	1.257	1.719	148.2
SACRAMENTO	2009	134.3	1.099	1.549	122.2
SACRAMENTO	2010	118.6	0.874	1.083	135.6
SACRAMENTO	2011	108.4	0.970	1.715	111.8
SACRAMENTO	2012	131.3	1.190	1.979	110.4
SACRAMENTO	2013	93.4	0.922	1.584	101.4
SACRAMENTO	2014	96.6	0.793	1.272	121.9
SACRAMENTO	2015	80.1	0.799	1.556	100.3
SACRAMENTO	2016	83.6	0.944	1.563	88.5
SACRAMENTO	2017	121.2	1.070	1.777	113.2
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SAN FRANCISCO	2008	62.4	0.698	0.272	89.4
SAN FRANCISCO	2009	74.9	0.802	0.099	93.3
SAN FRANCISCO	2010	49.7	0.647	0.078	76.7
SAN FRANCISCO	2011	46.6	0.541	0.210	86.1
SAN FRANCISCO	2012	47.7	0.569	1.009	83.8
SAN FRANCISCO	2013	52.1	0.603	0.304	86.4
SAN FRANCISCO	2014	41.6	0.459	0.234	90.5
SAN FRANCISCO	2015	33.9	0.504	0.501	67.2
SAN FRANCISCO	2016	39.7	0.518	0.355	76.7
SAN FRANCISCO	2017	36.5	0.500	0.401	73.0
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SAN JOSE	2008	91.9	0.799	1.010	115.1
SAN JOSE	2009	75.8	0.752	0.795	100.7
SAN JOSE	2010	69.4	0.759	0.538	91.5
SAN JOSE	2011	101.6	0.885	0.700	114.7
SAN JOSE	2012	80.6	0.779	0.958	103.5
SAN JOSE	2013	97.1	0.915	0.976	106.1
SAN JOSE	2014	80.3	0.800	1.030	100.3
SAN JOSE	2015	65.9	0.678	1.008	97.2
SAN JOSE	2016	65.5	0.644	1.157	101.7
SAN JOSE	2017	72.3	0.739	1.293	97.8
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SIERRA	2008	251.9	1.595	1.532	157.9
SIERRA	2009	259.6	1.419	1.213	182.9
SIERRA	2010	194.0	1.334	1.123	145.4
SIERRA	2011	178.5	1.165	1.394	153.2
SIERRA	2012	183.2	1.319	2.910	138.9
SIERRA	2013	111.5	1.259	3.105	88.6
SIERRA	2014	142.5	1.198	2.141	119.0
SIERRA	2015	123.2	1.115	2.816	110.5
SIERRA	2016	121.6	1.025	1.733	118.6
SIERRA	2017	155.0	1.191	1.897	130.2

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SONOMA	2008	155.5	1.114	0.942	139.6
SONOMA	2009	153.6	1.141	1.321	134.7
SONOMA	2010	151.4	1.130	0.818	134.0
SONOMA	2011	103.8	0.901	1.338	115.1
SONOMA	2012	117.9	0.895	1.732	131.8
SONOMA	2013	113.9	0.846	2.256	134.7
SONOMA	2014	113.7	0.899	1.587	126.6
SONOMA	2015	73.0	0.673	1.534	108.5
SONOMA	2016	88.6	0.792	1.513	111.8
SONOMA	2017	120.7	0.886	1.594	136.2
Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
STOCKTON	2008	160.7	1.121	1.818	143.4
STOCKTON	2009	159.9	1.252	2.722	127.7
STOCKTON	2010	166.2	1.310	1.402	126.9
STOCKTON	2011	180.4	1.222	0.911	147.6
STOCKTON	2012	91.4	0.989	1.975	92.4
STOCKTON	2013	106.9	1.420	2.032	75.2
STOCKTON	2014	108.0	0.754	1.333	143.2
STOCKTON	2015	96.1	0.874	1.947	109.9
STOCKTON	2016	84.0	0.900	1.674	93.3
STOCKTON	2017	84.6	0.946	1.276	89.5
Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
YOSEMITE	2008	204.6	1.390	1.532	147.2
YOSEMITE	2009	183.9	1.229	1.466	149.6
YOSEMITE	2010	226.3	1.474	2.598	153.5
YOSEMITE	2011	207.9	1.273	1.818	163.4
YOSEMITE	2012	140.8	1.264	4.096	111.3
YOSEMITE	2013	188.4	1.312	3.293	143.6
YOSEMITE	2014	117.6	1.218	2.454	96.6
YOSEMITE	2015	102.3	0.984	2.638	103.9
YOSEMITE	2016	123.2	1.178	2.030	104.5
YOSEMITE	2017	143.0	1.170	2.182	122.2

c. Charts for Division Reliability Indices for the past 10 years

i. Charts for Division Reliability Indices for the past 10 years with linear trend line excluding ISO and planned outages and including MED

1. AIDI Performance Results (MED Included)

Chart 11: Division Reliability - AIDI Indices

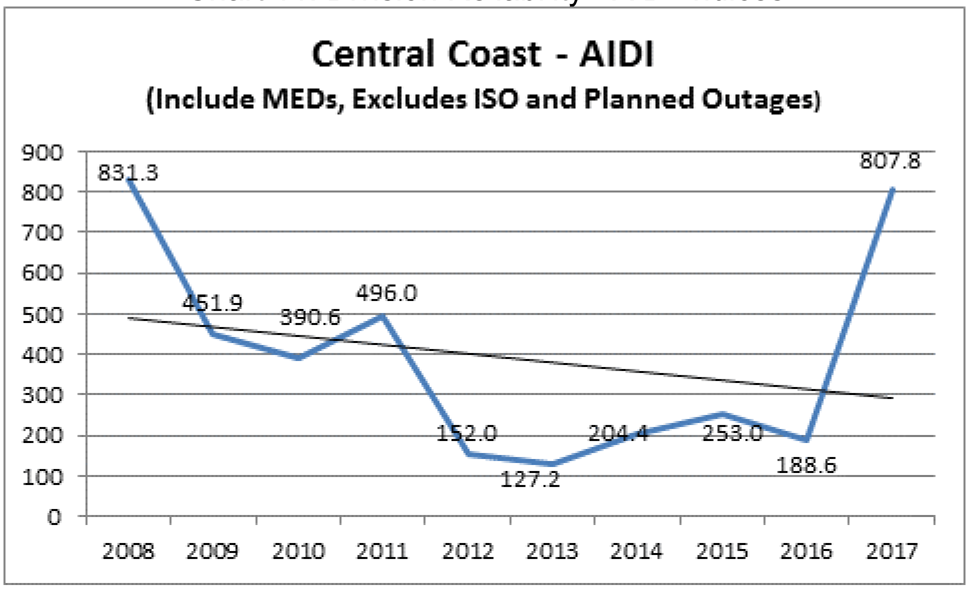


Chart 12: Division Reliability - AIDI Indices

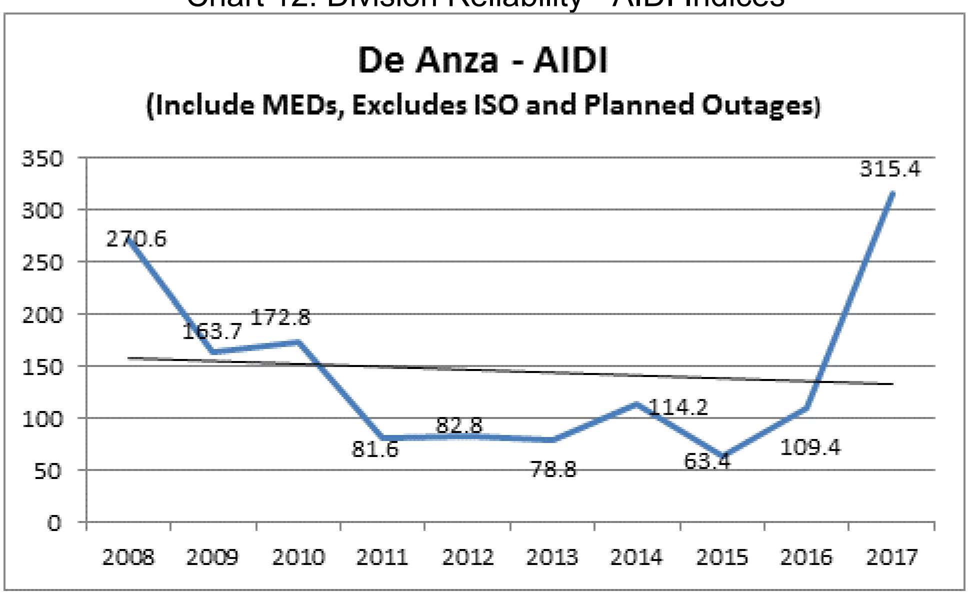


Chart 13: Division Reliability - AIDI Indices

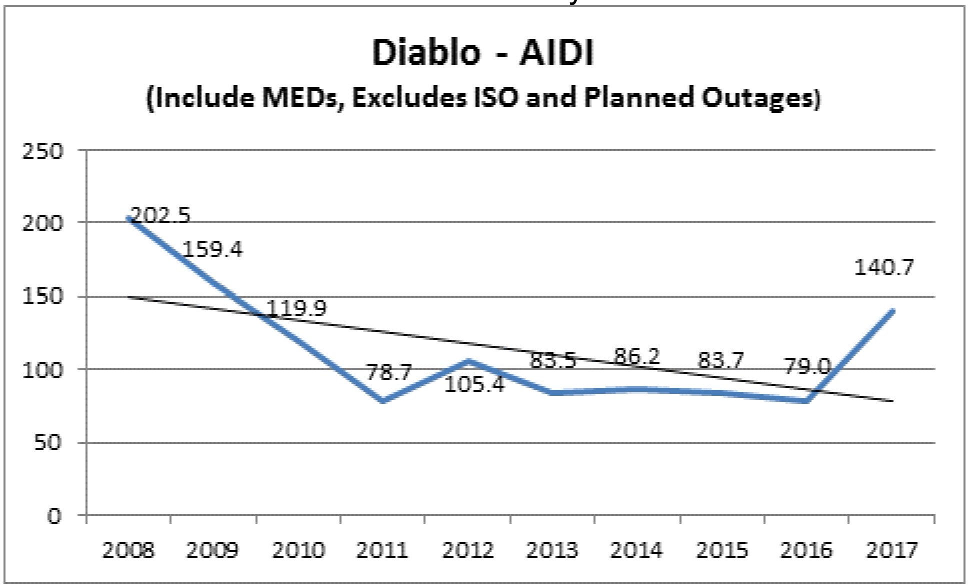


Chart 14: Division Reliability - AIDI Indices

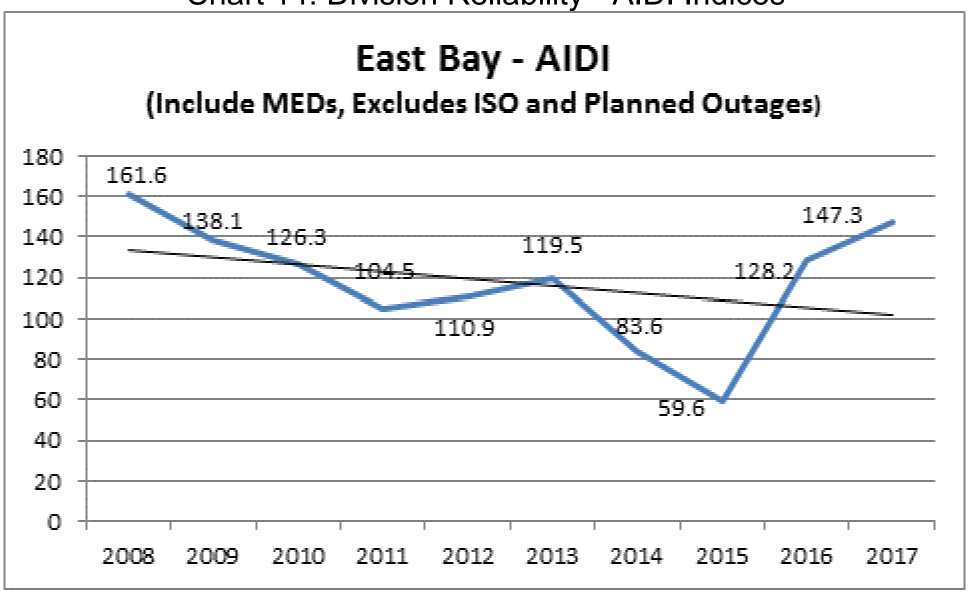


Chart 15: Division Reliability - AIDI Indices

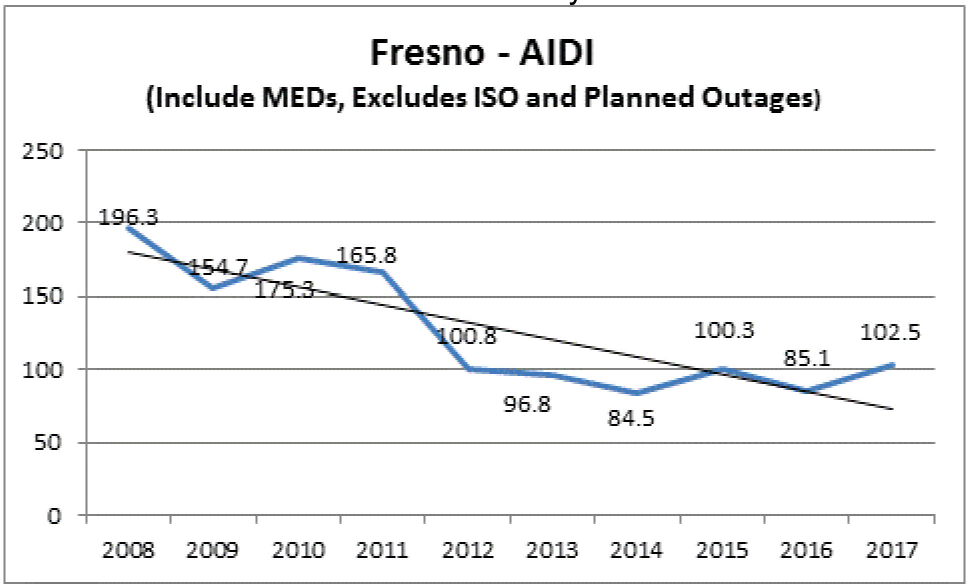


Chart 16: Division Reliability - AIDI Indices

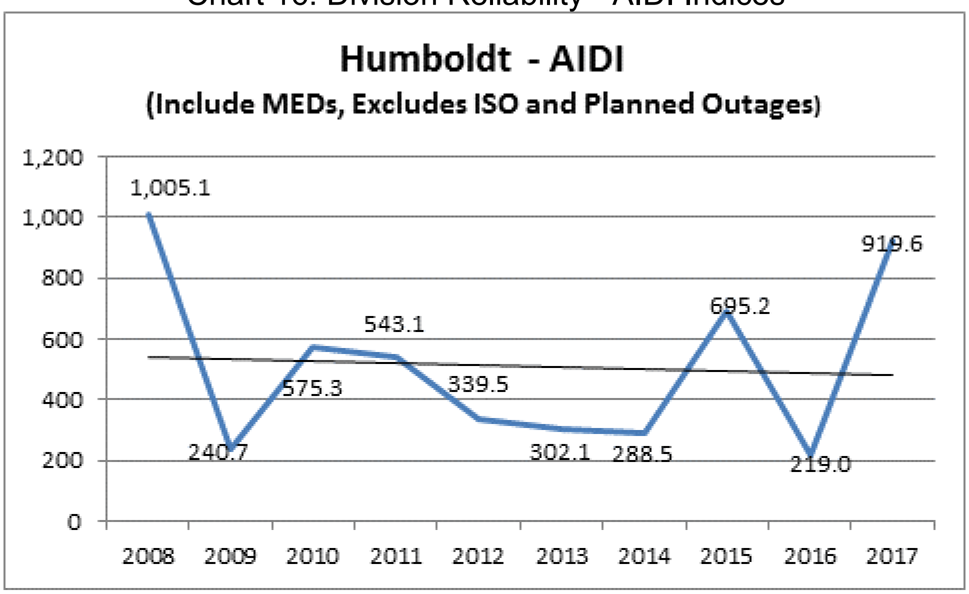


Chart 17: Division Reliability - AIDI Indices

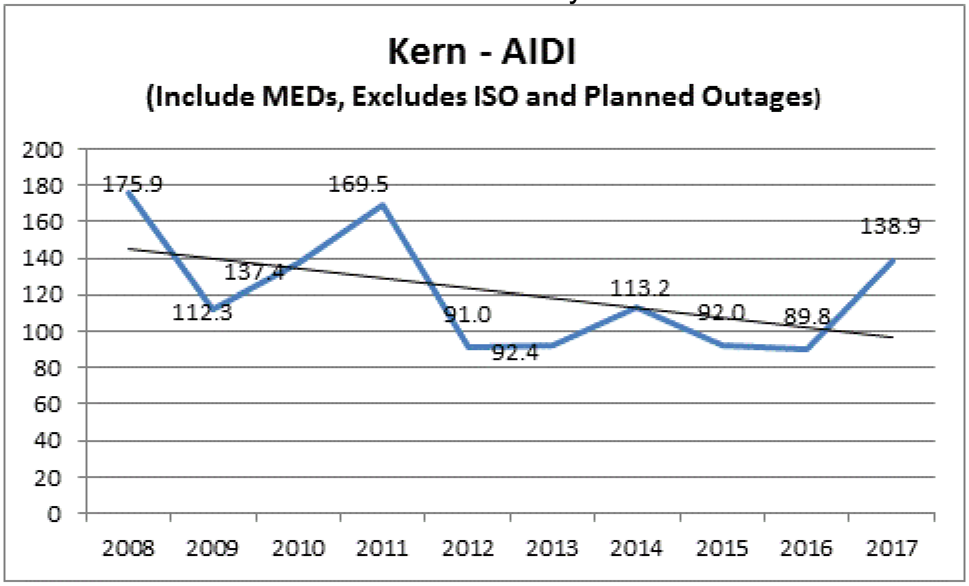


Chart 18: Division Reliability - AIDI Indices

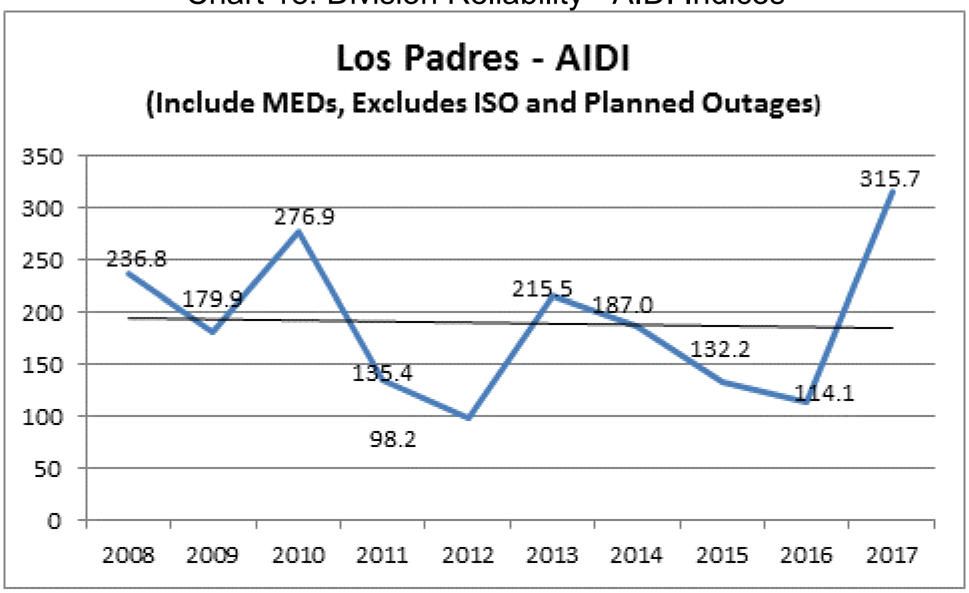


Chart 19: Division Reliability - AIDI Indices

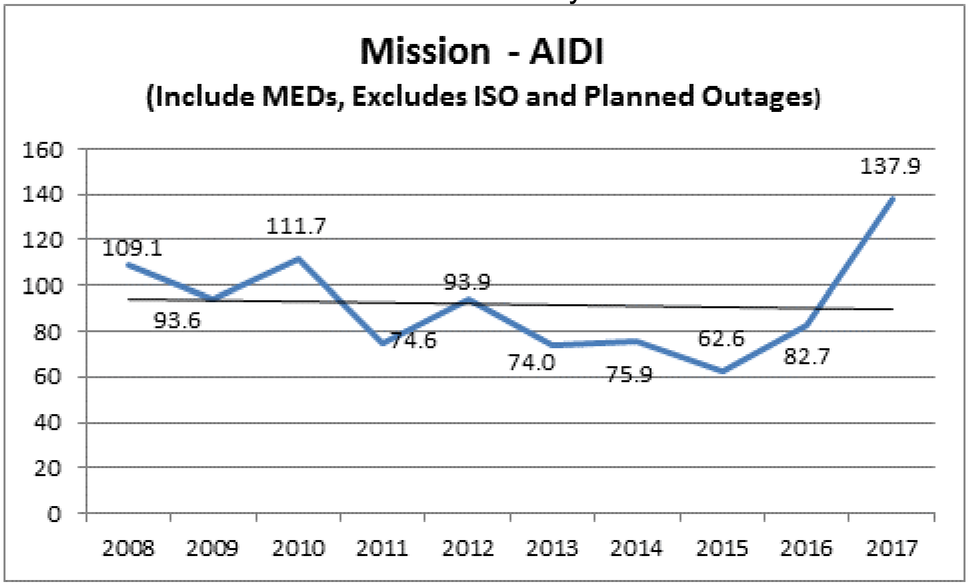


Chart 20: Division Reliability – AIDI Indices

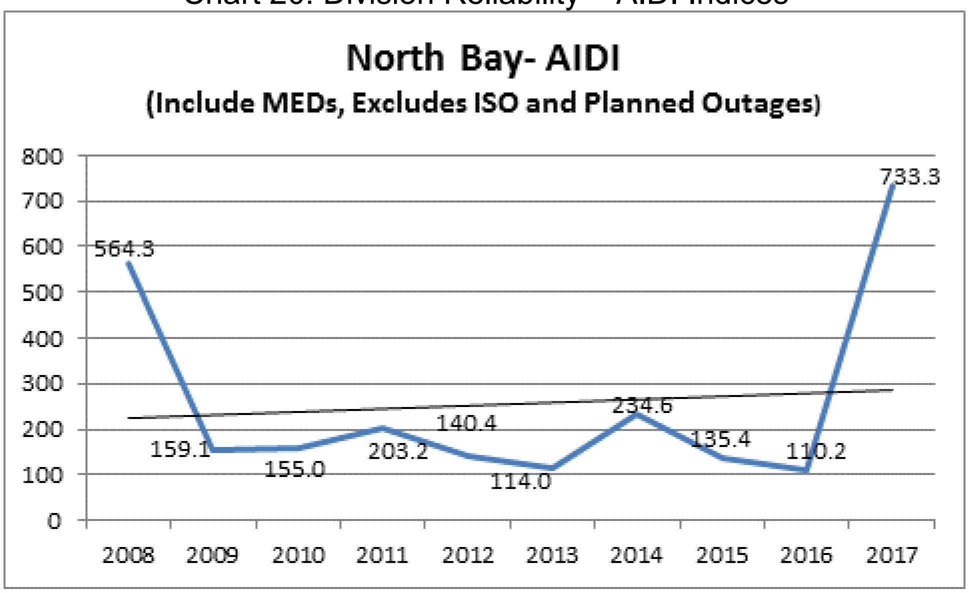


Chart 21: Division Reliability - AIDI Indices

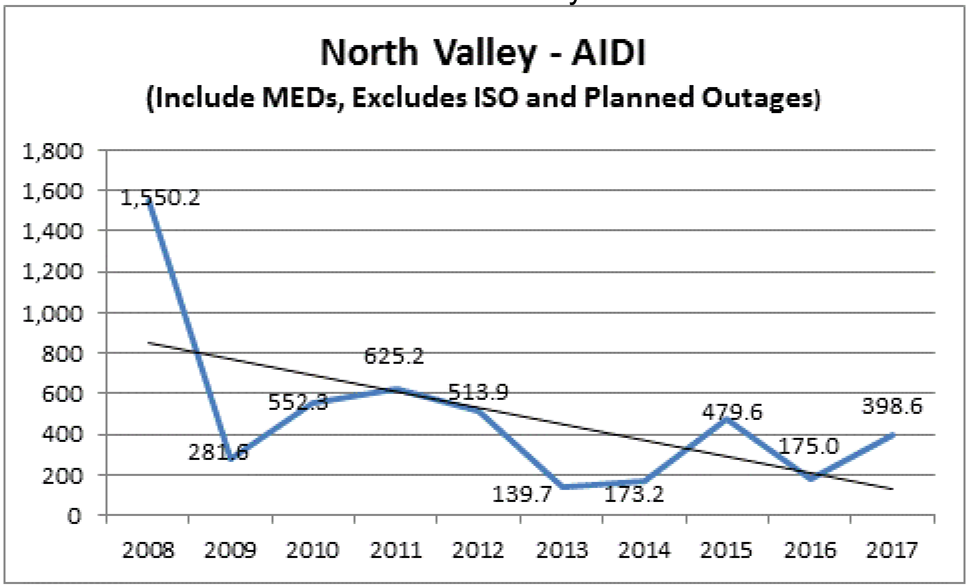


Chart 22: Division Reliability - AIDI Indices

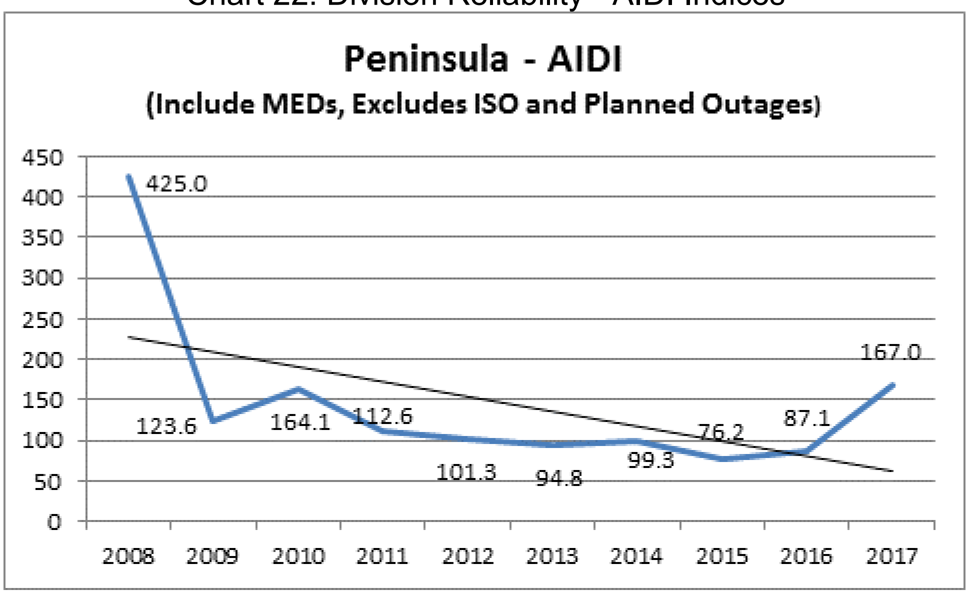


Chart 23: Division Reliability - AIDI Indices

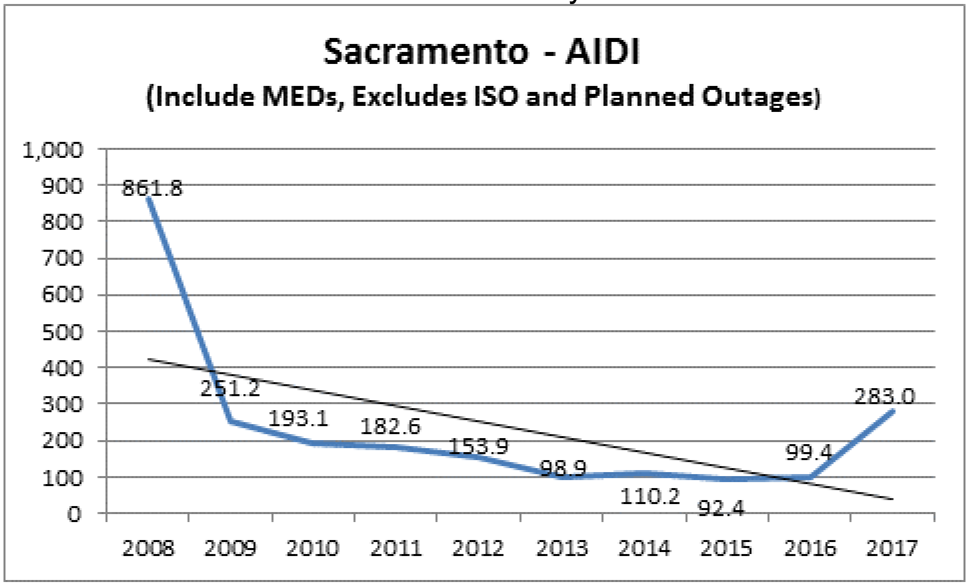


Chart 24: Division Reliability - AIDI Indices

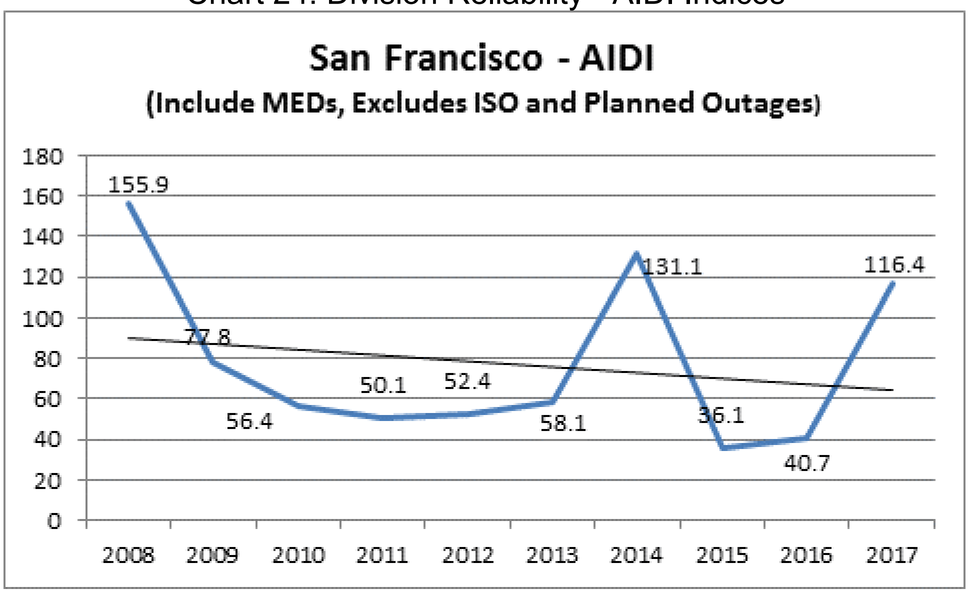


Chart 25: Division Reliability - AIDI Indices

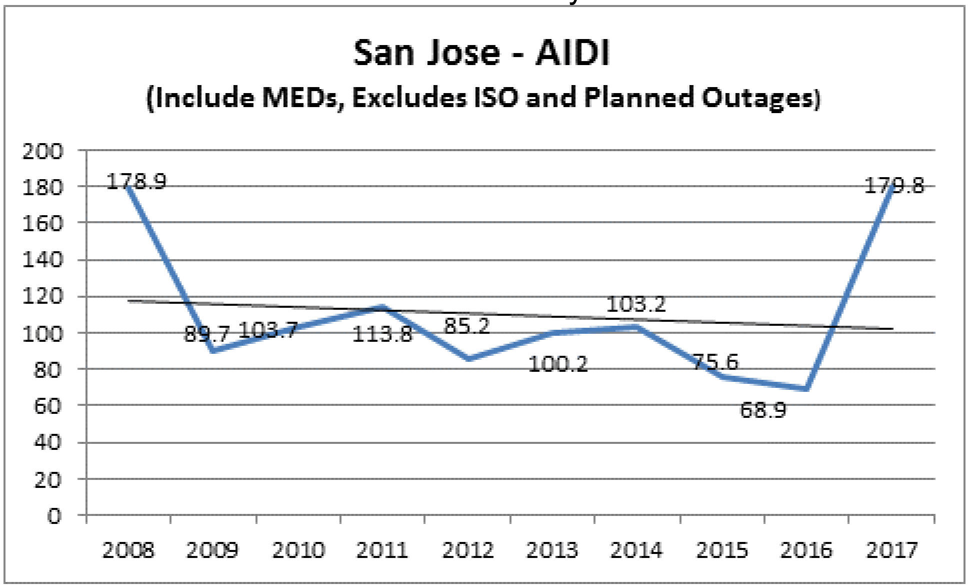


Chart 26: Division Reliability – AIDI Indices

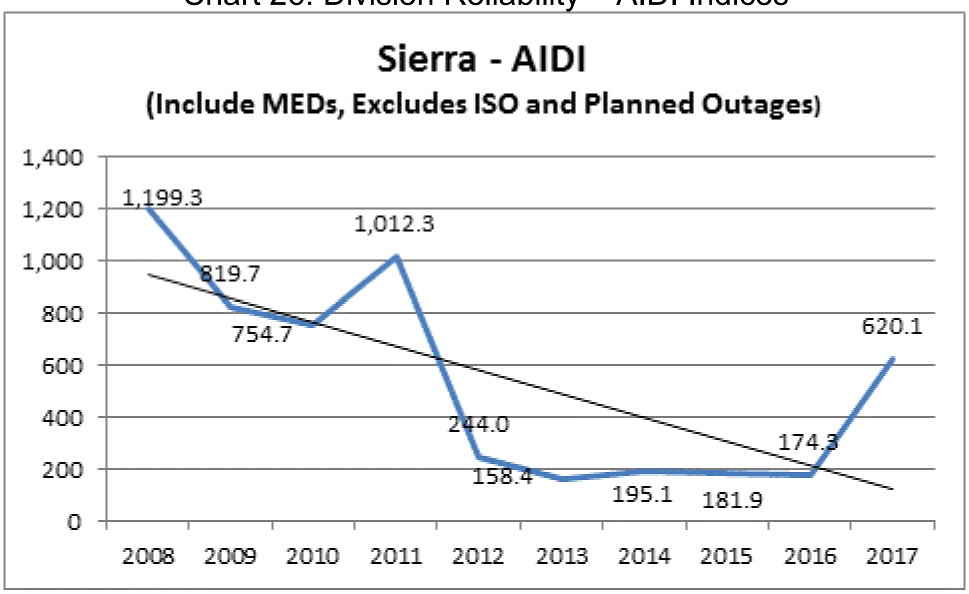


Chart 27: Division Reliability – AIDI Indices

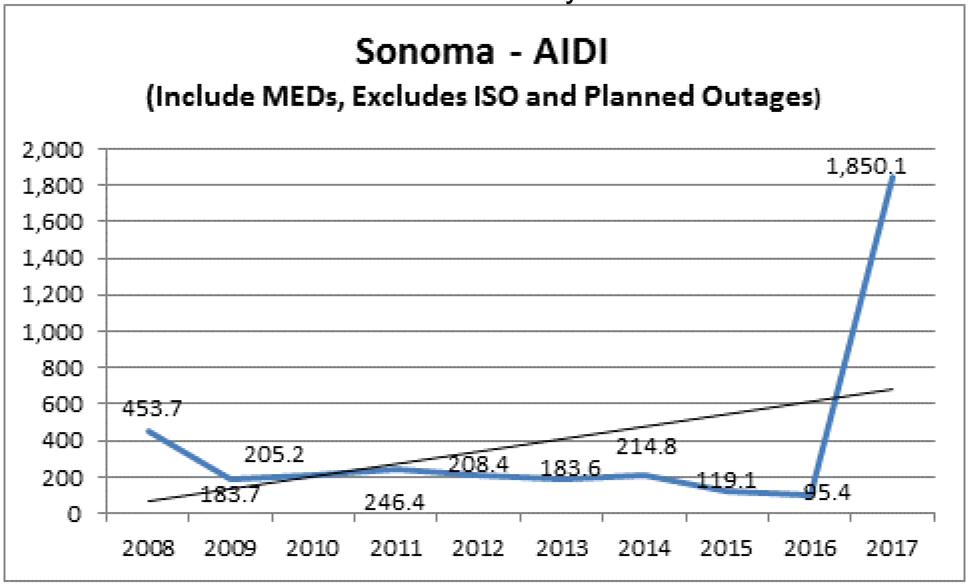


Chart 28: Division Reliability - AIDI Indices

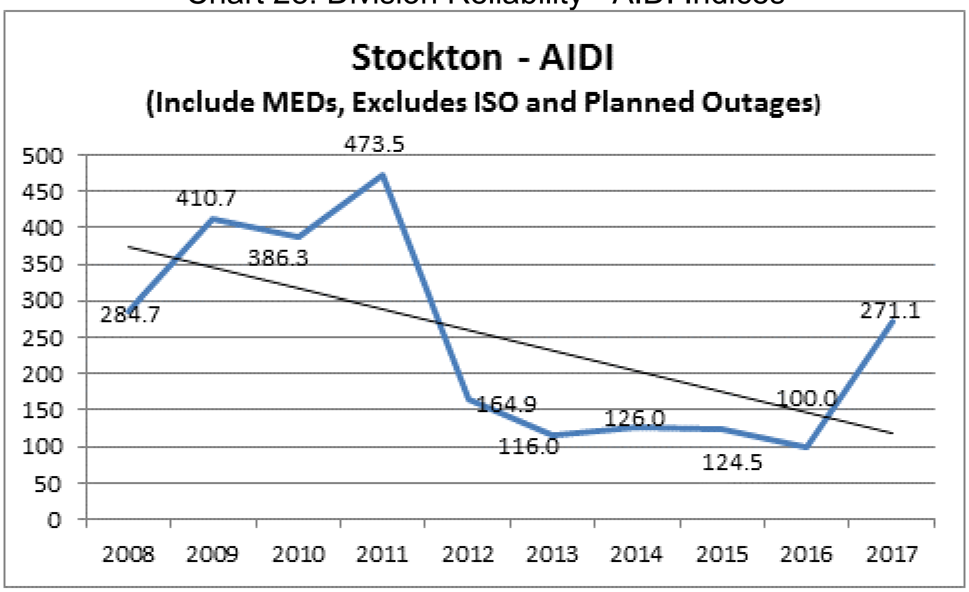
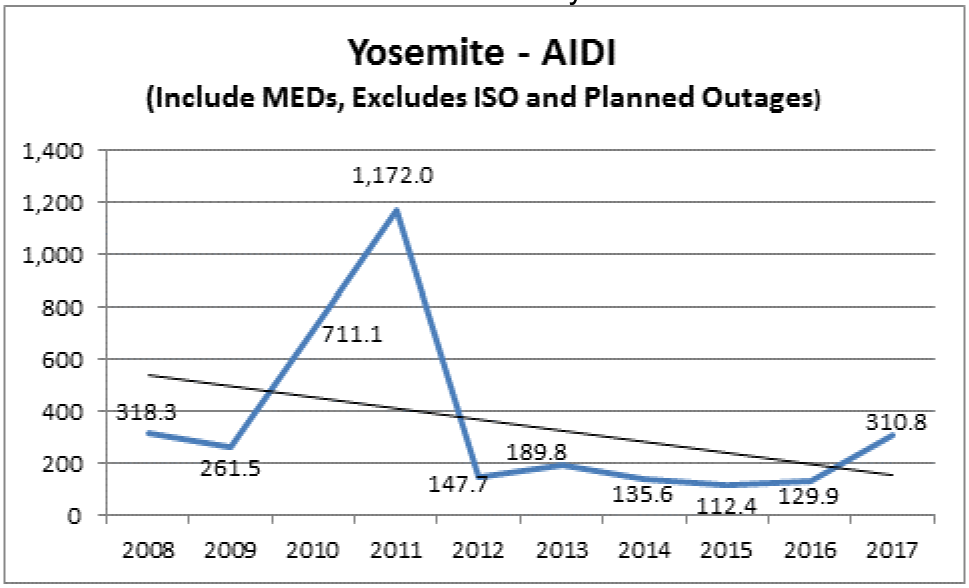


Chart 29: Division Reliability - AIDI Indices



2. AIFI Performance Results (MED Included)

Chart 30: Division Reliability - AIFI Indices

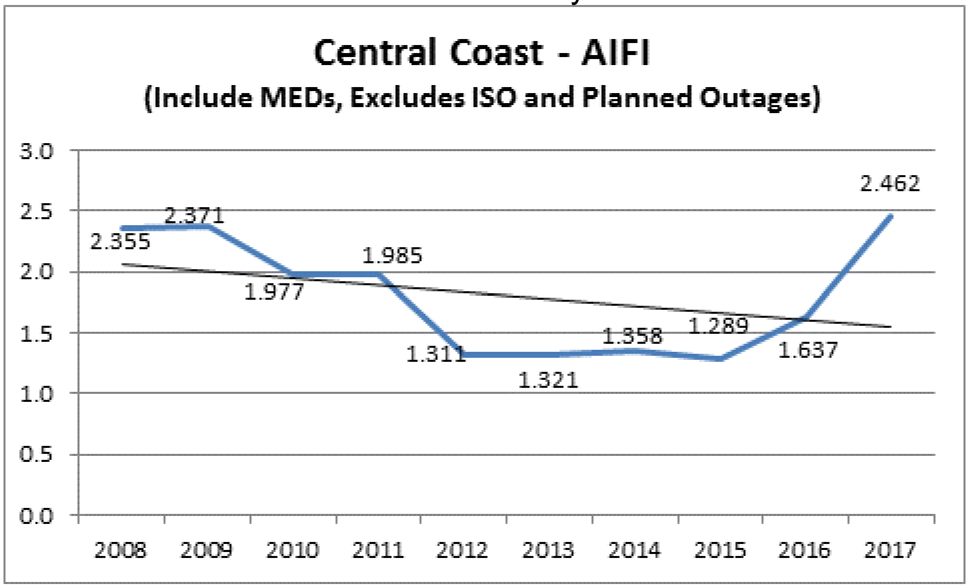


Chart 31: Division Reliability - AIFI Indices

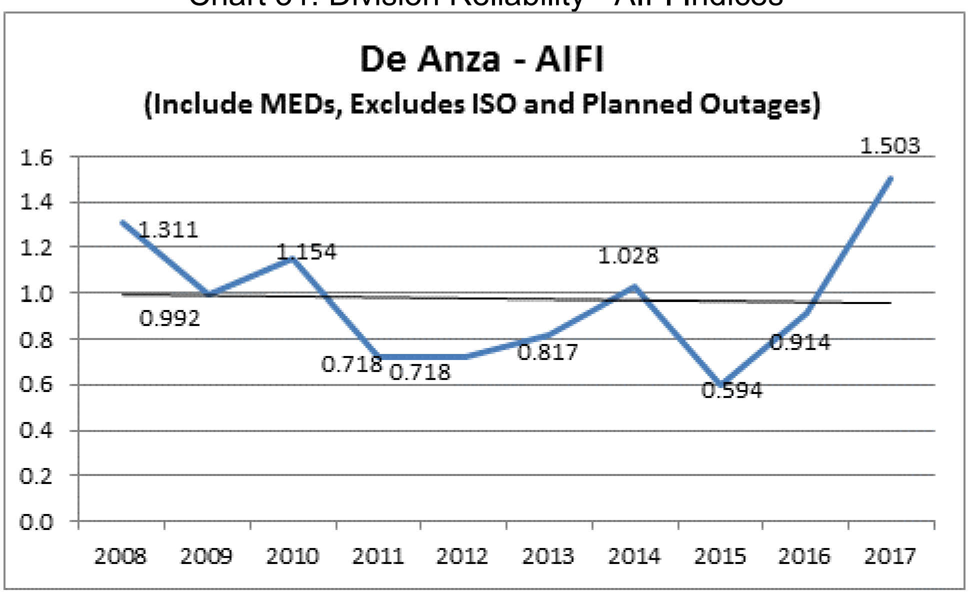


Chart 32: Division Reliability - AIFI Indices

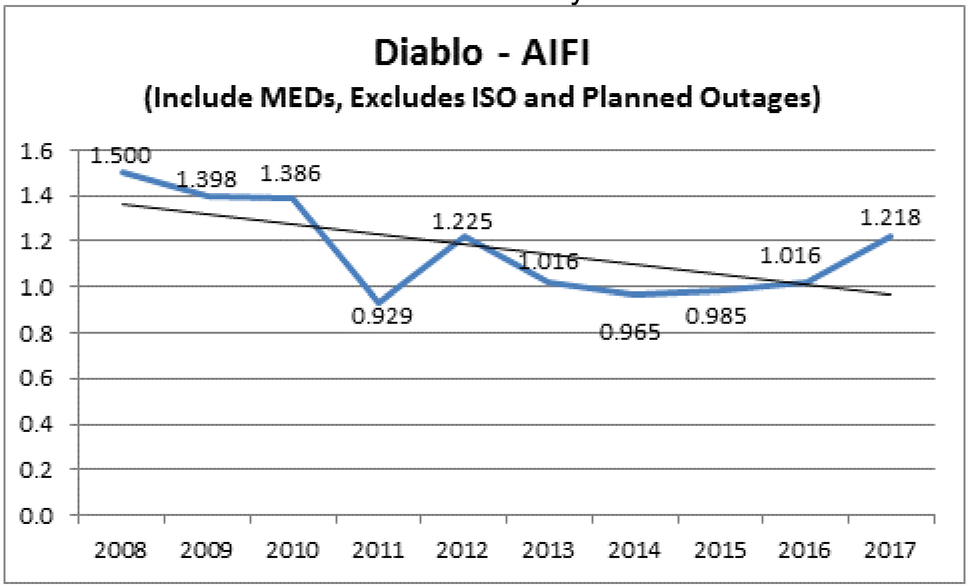


Chart 33: Division Reliability - AIFI Indices

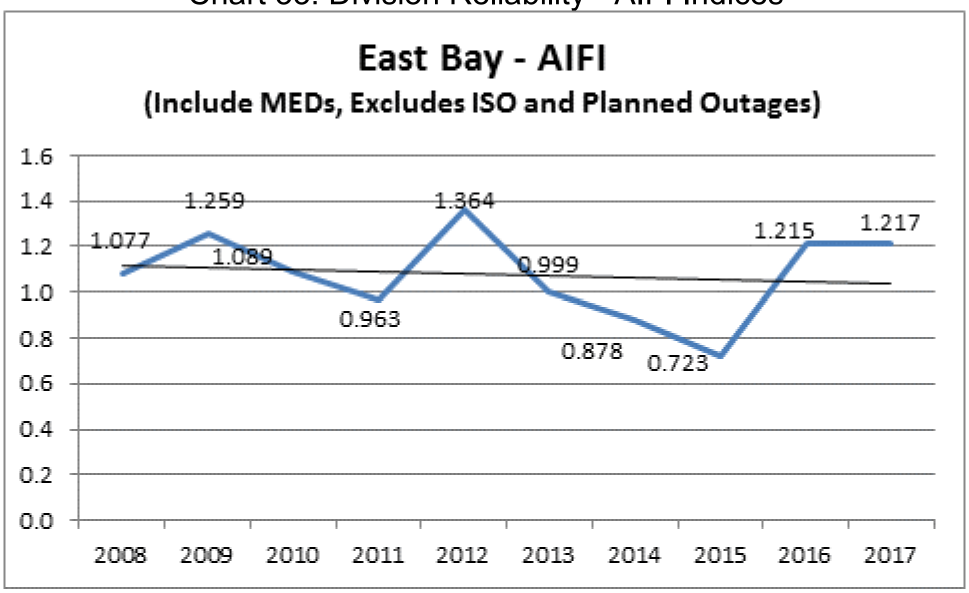


Chart 34: Division Reliability - AIFI Indices

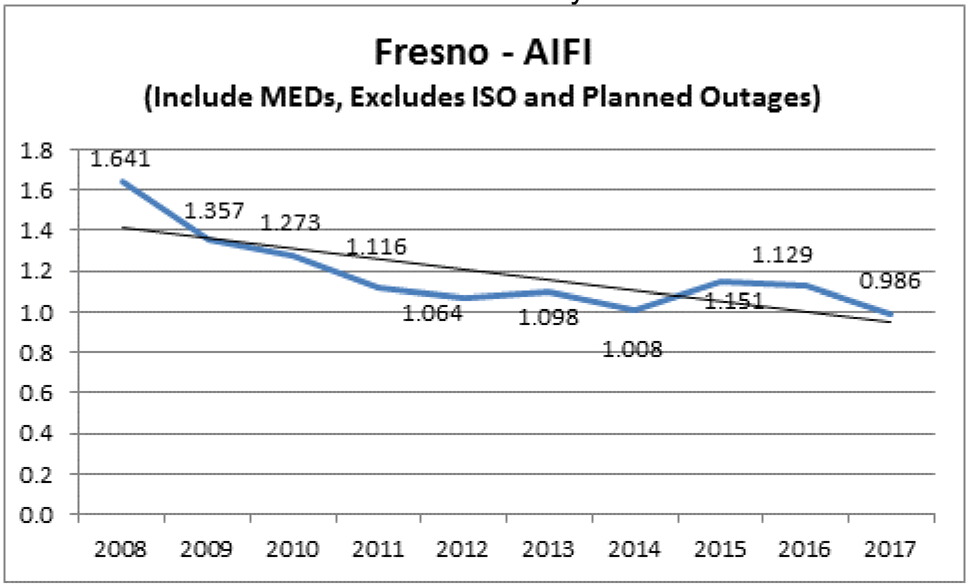


Chart 35: Division Reliability - AIFI Indices

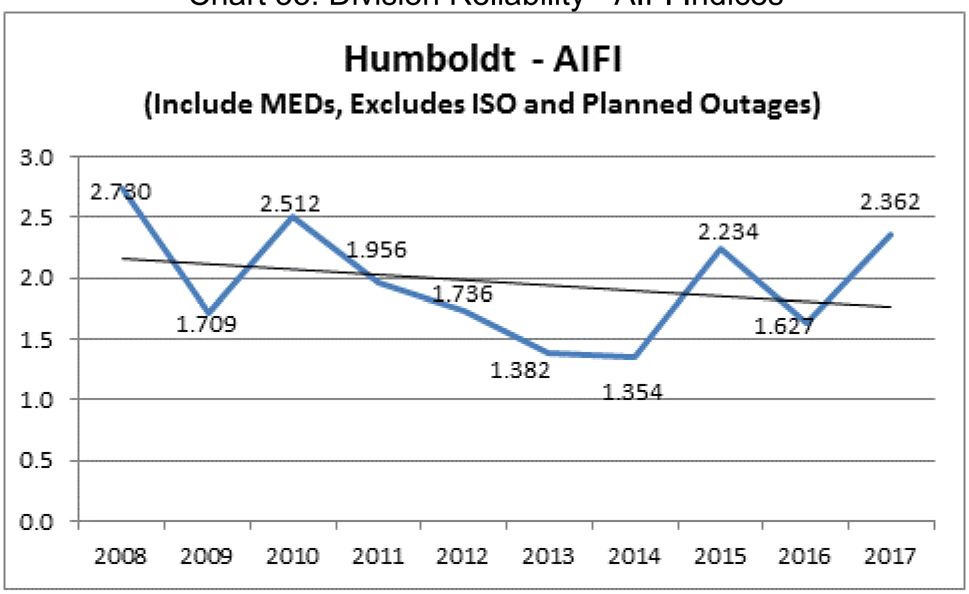


Chart 36: Division Reliability - AIFI Indices

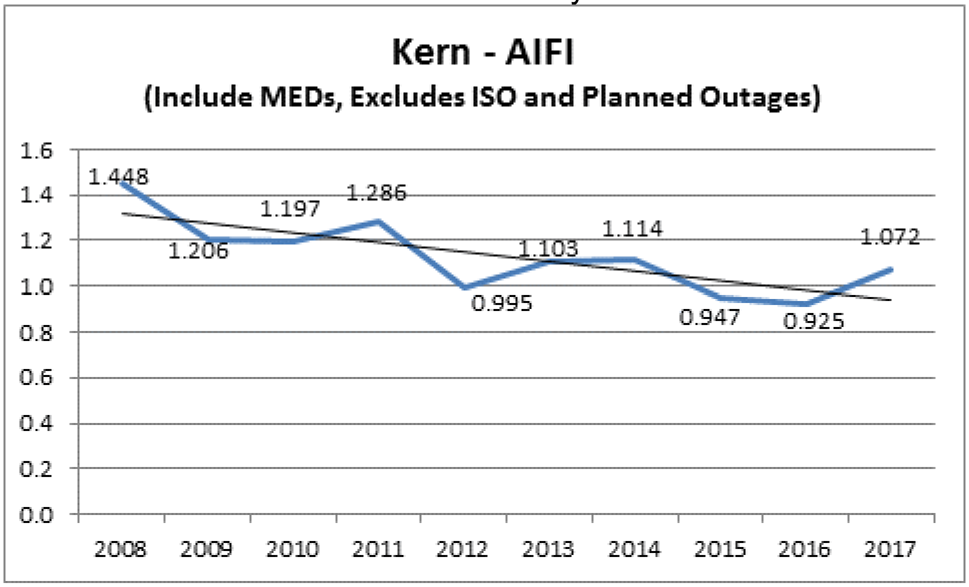


Chart 37: Division Reliability - AIFI Indices

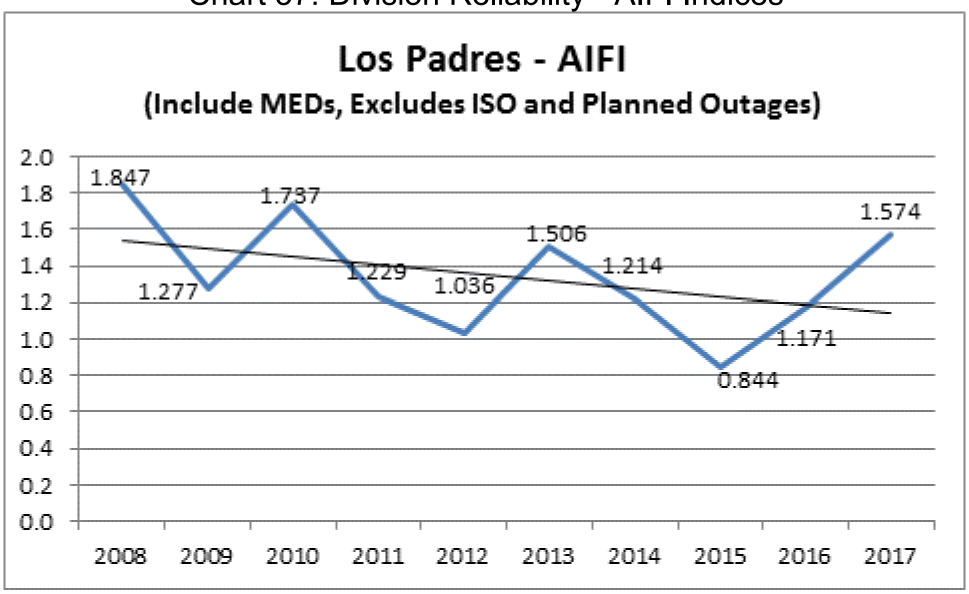


Chart 38: Division Reliability - AIFI Indices

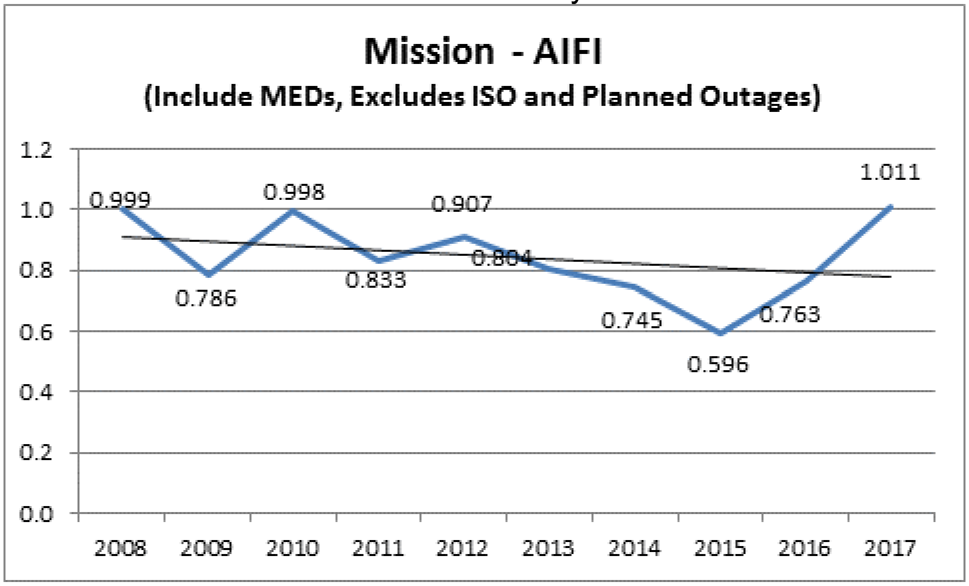


Chart 39: Division Reliability - AIFI Indices

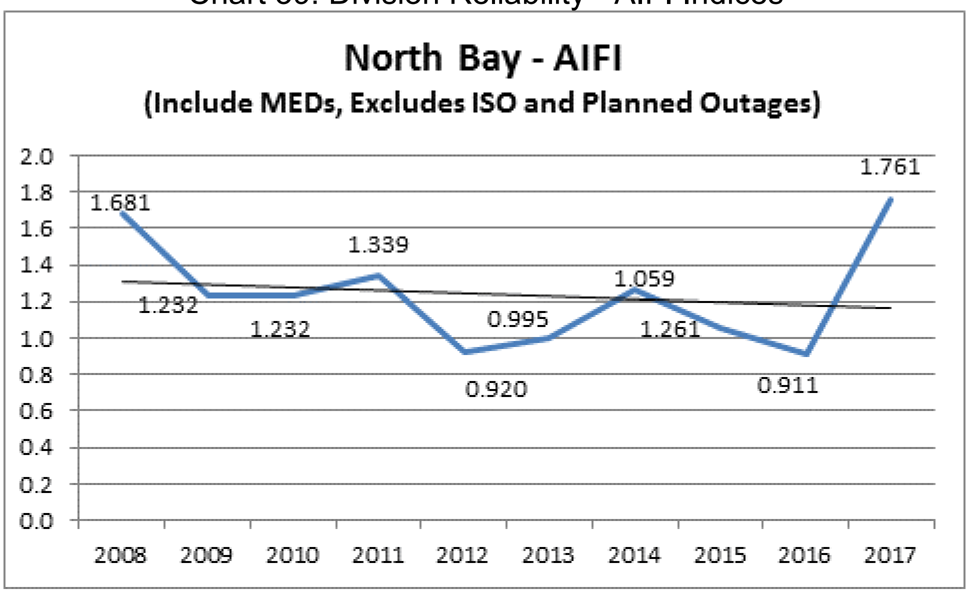


Chart 40: Division Reliability - AIFI Indices

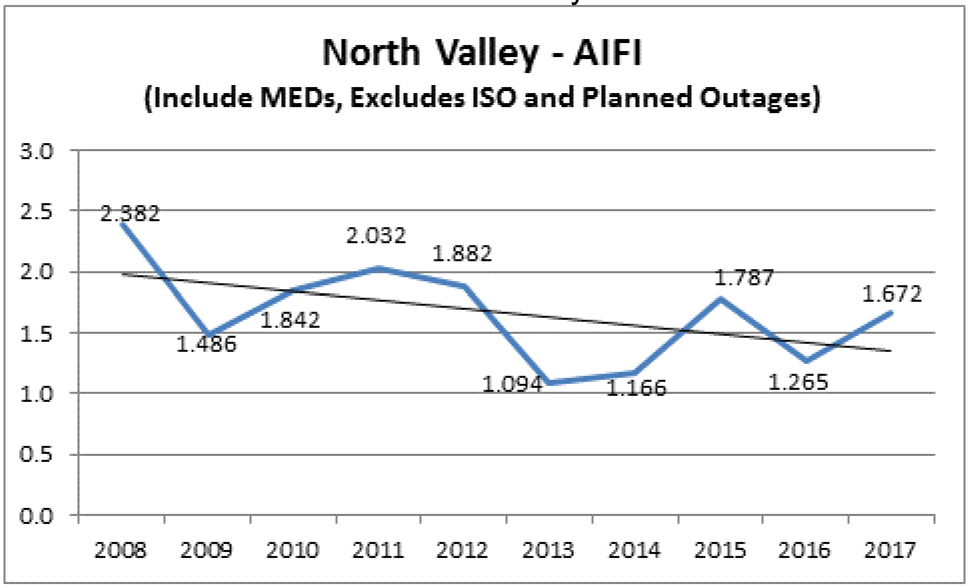


Chart 41: Division Reliability - AIFI Indices

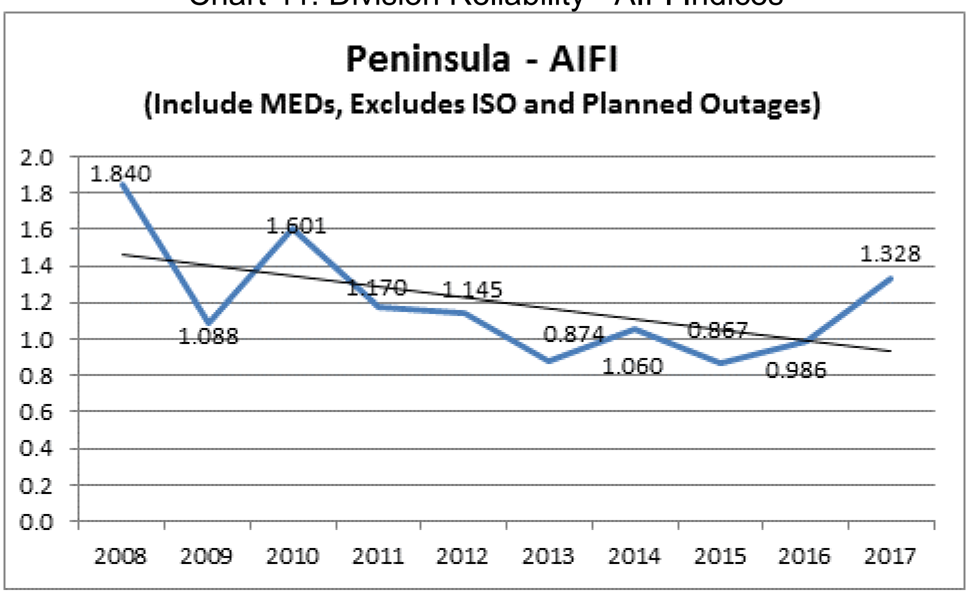


Chart 42: Division Reliability - AIFI Indices

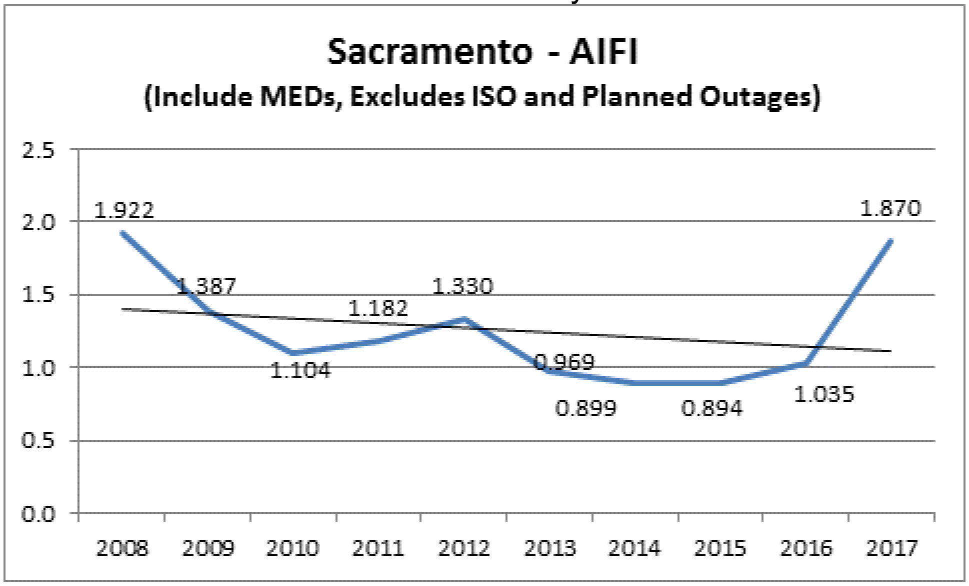


Chart 43: Division Reliability - AIFI Indices

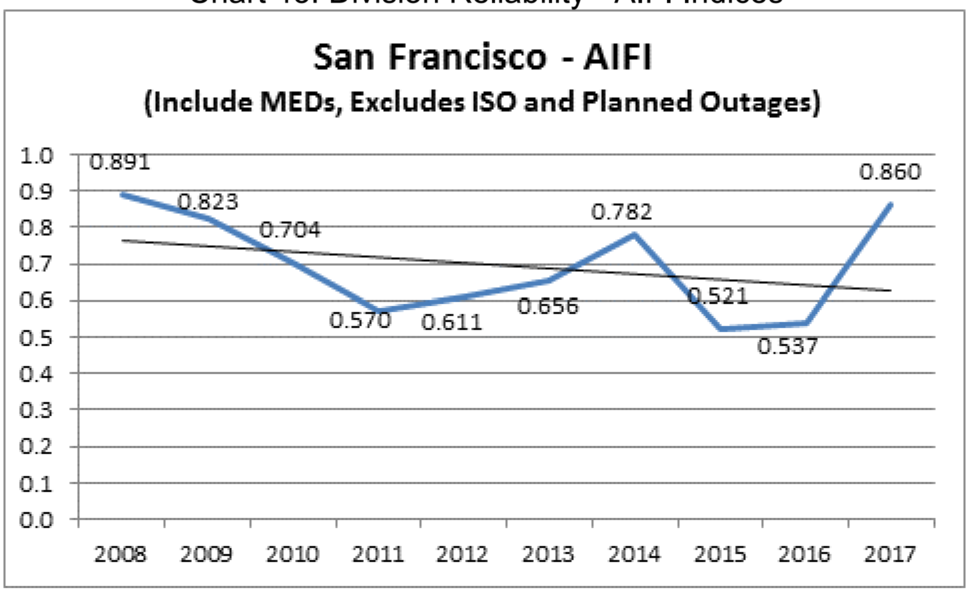


Chart 44: Division Reliability - AIFI Indices

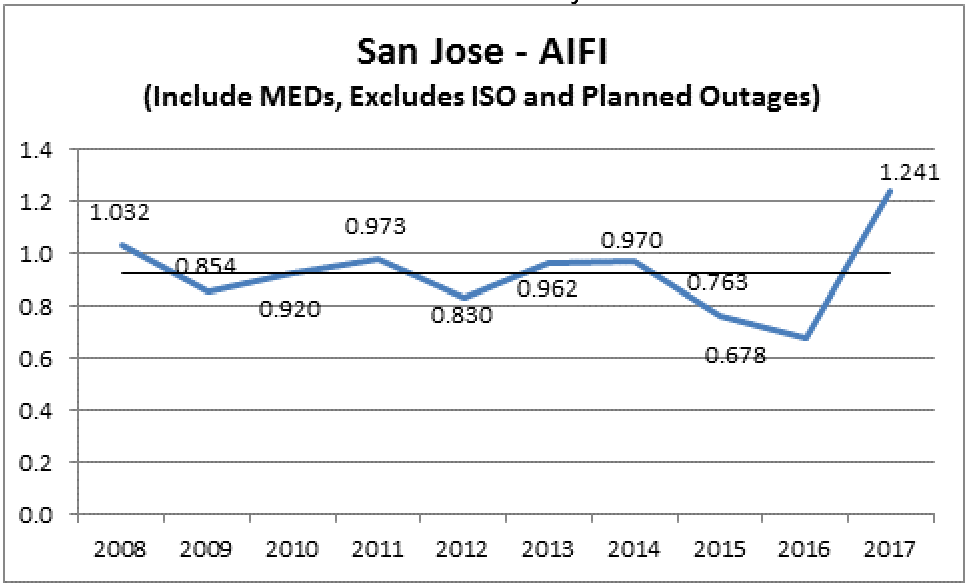


Chart 45: Division Reliability - AIFI Indices

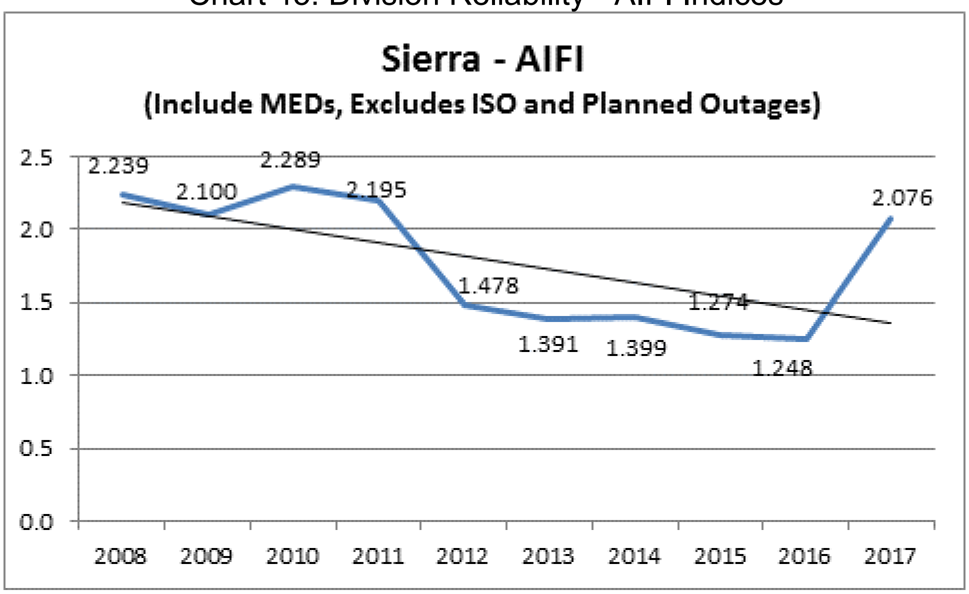


Chart 46: Division Reliability - AIFI Indices

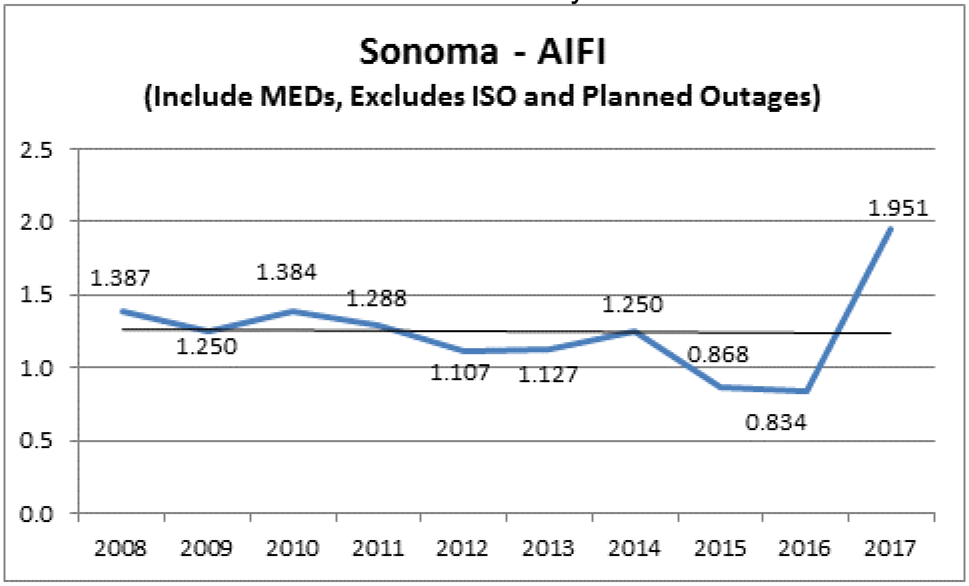


Chart 47: Division Reliability - AIFI Indices

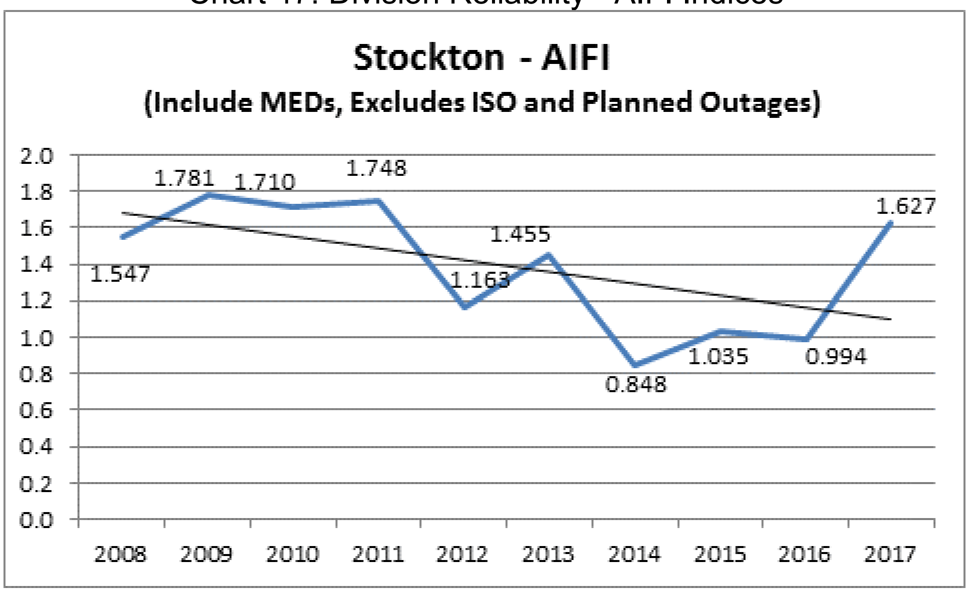
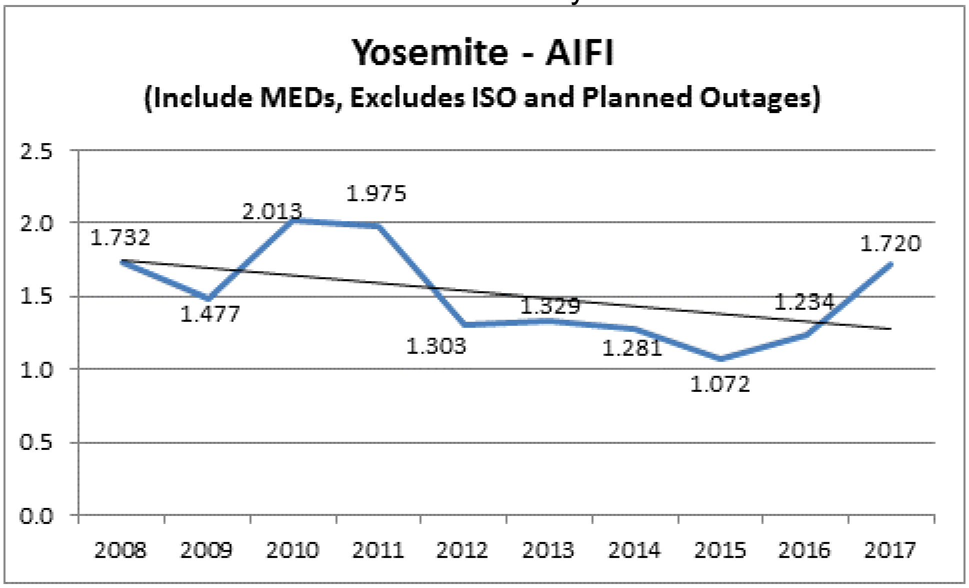


Chart 48: Division Reliability - AIFI Indices



3. MAIFI Performance Results (MED Included)

Chart 49: Division Reliability - MAIFI Indices

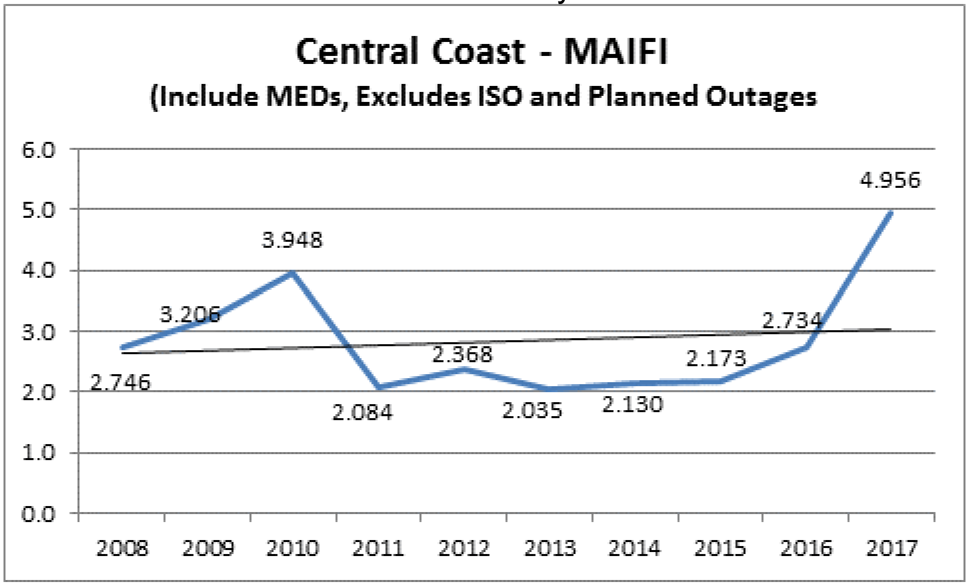


Chart 50: Division Reliability - MAIFI Indices

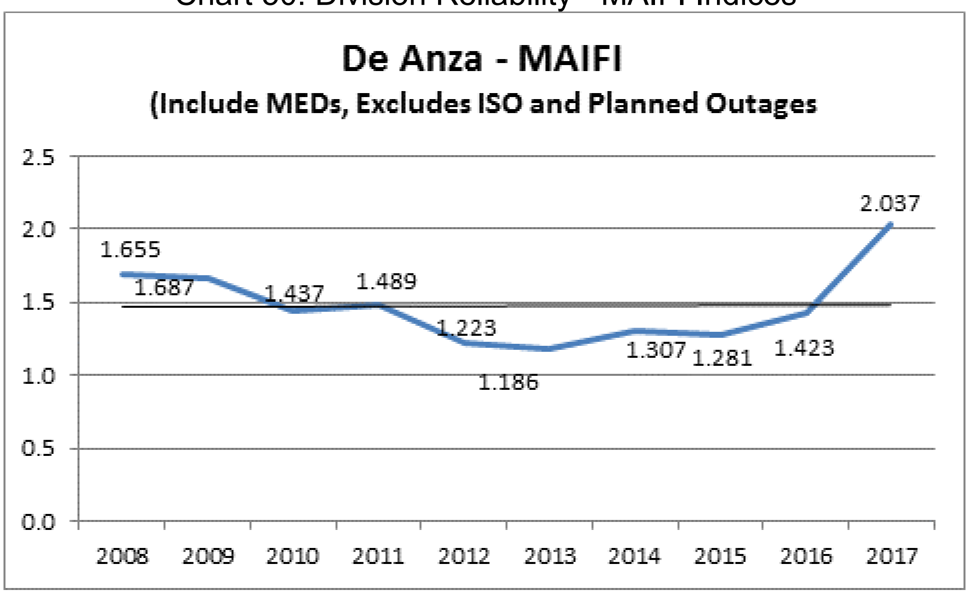


Chart 51: Division Reliability - MAIFI Indices

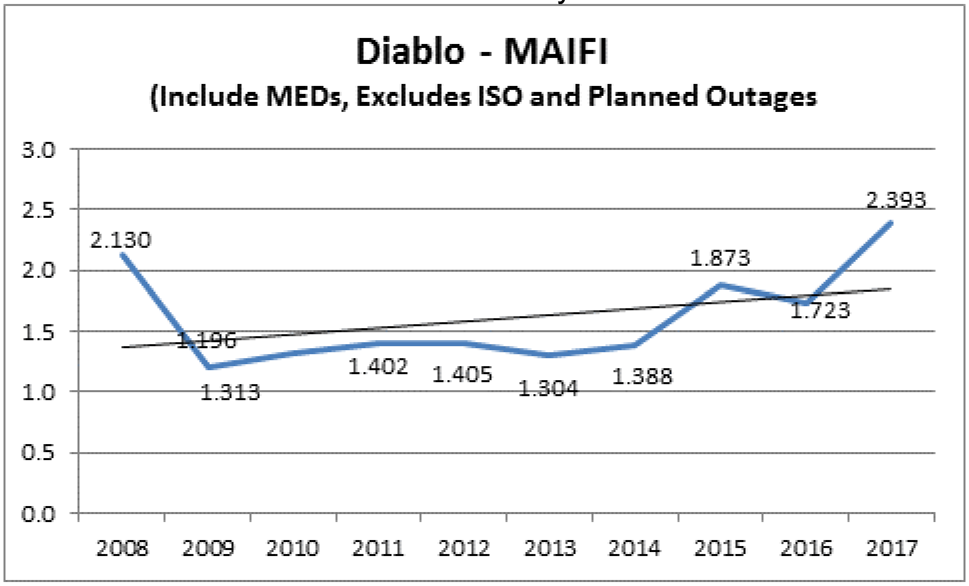


Chart 52: Division Reliability - MAIFI Indices

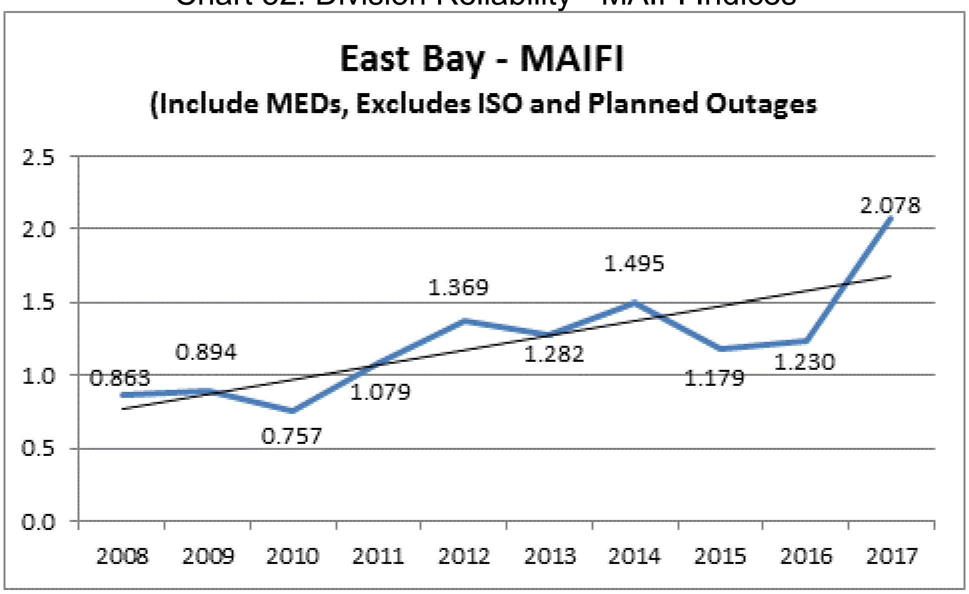


Chart 53: Division Reliability - MAIFI Indices

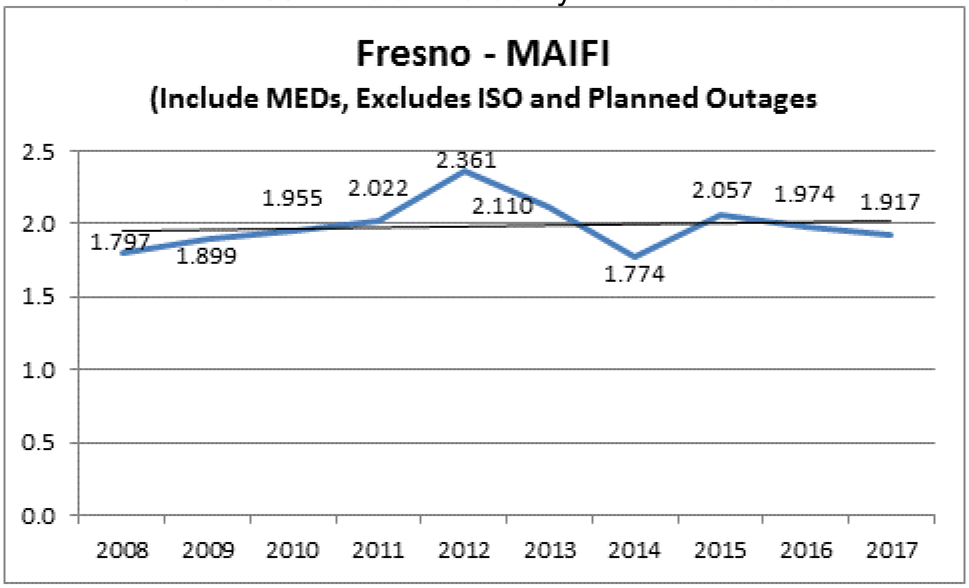


Chart 54: Division Reliability - MAIFI Indices

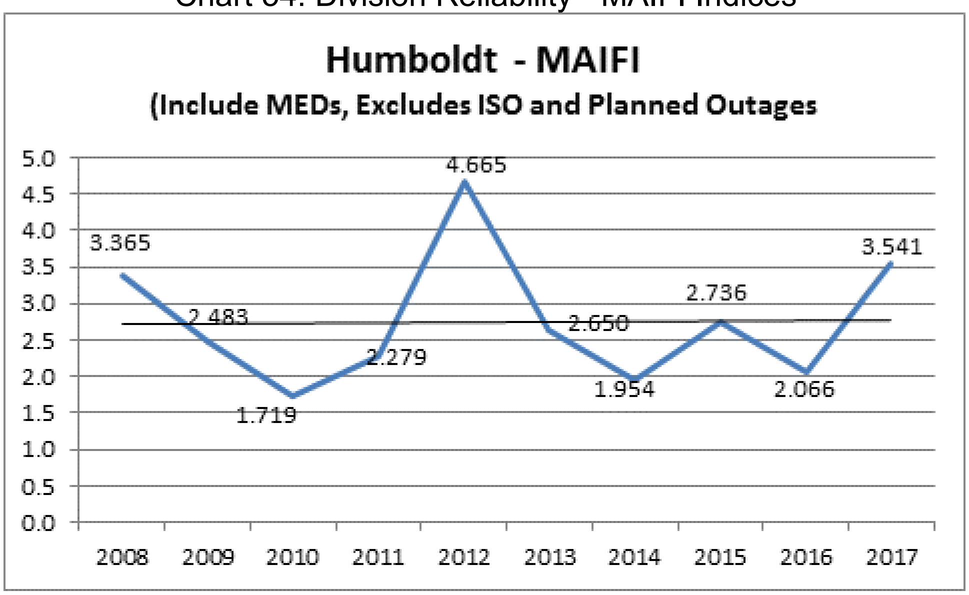


Chart 55: Division Reliability - MAIFI Indices

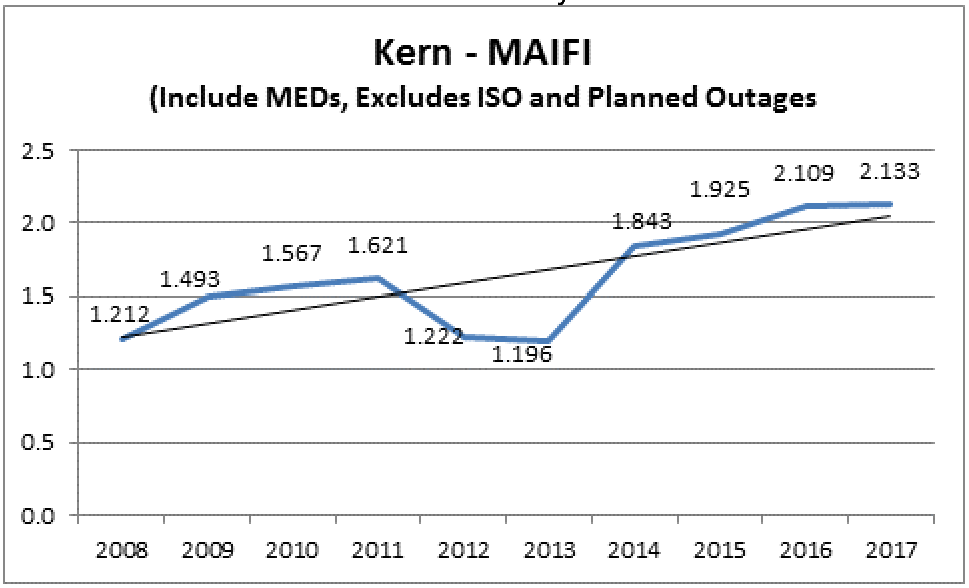


Chart 56: Division Reliability - MAIFI Indices

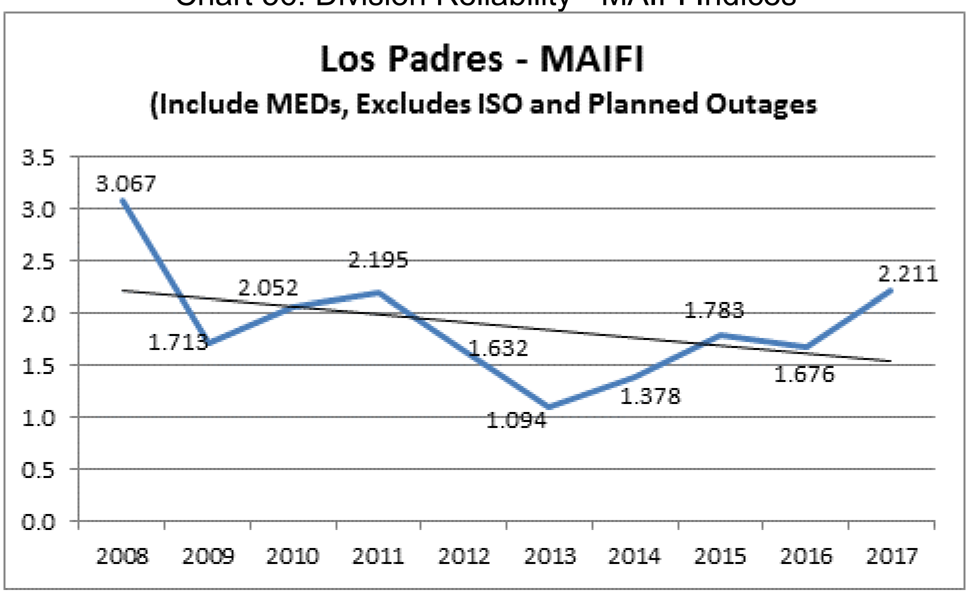


Chart 57: Division Reliability - MAIFI Indices

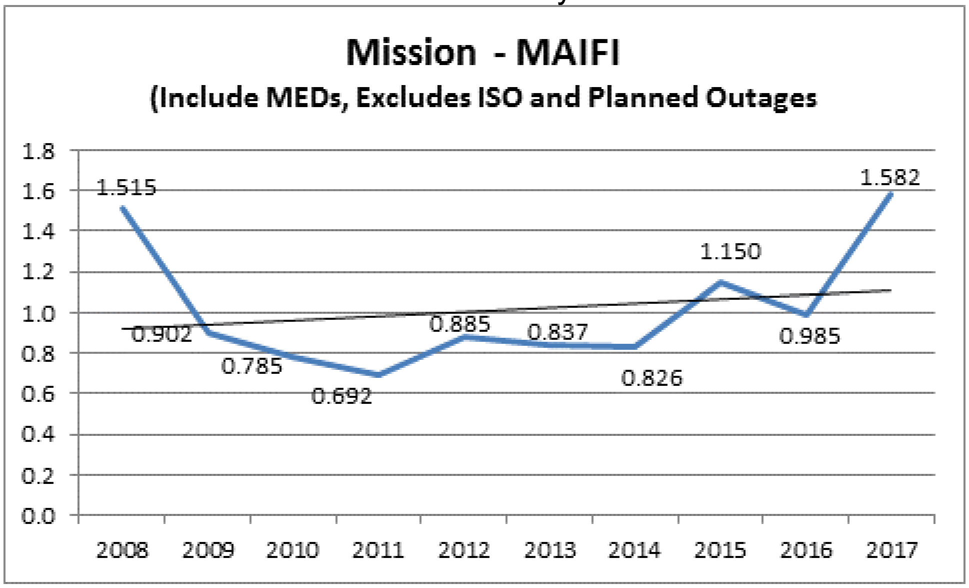


Chart 58: Division Reliability - MAIFI Indices

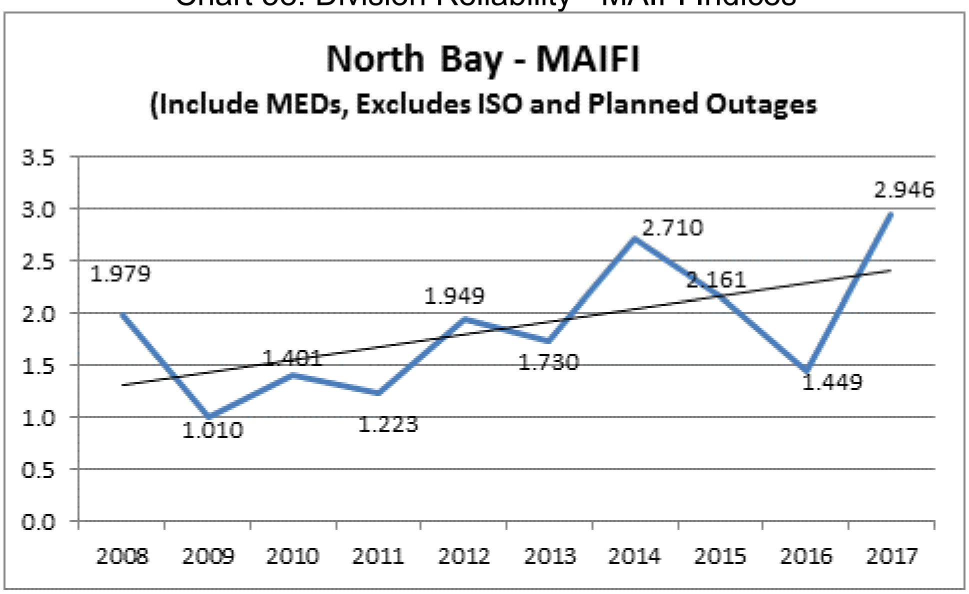


Chart 59: Division Reliability - MAIFI Indices

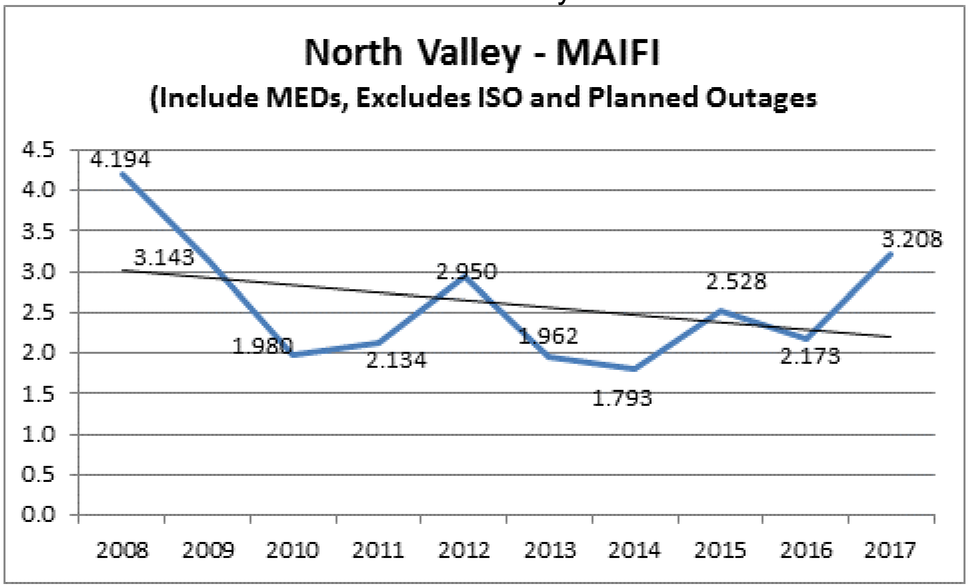


Chart 60: Division Reliability - MAIFI Indices

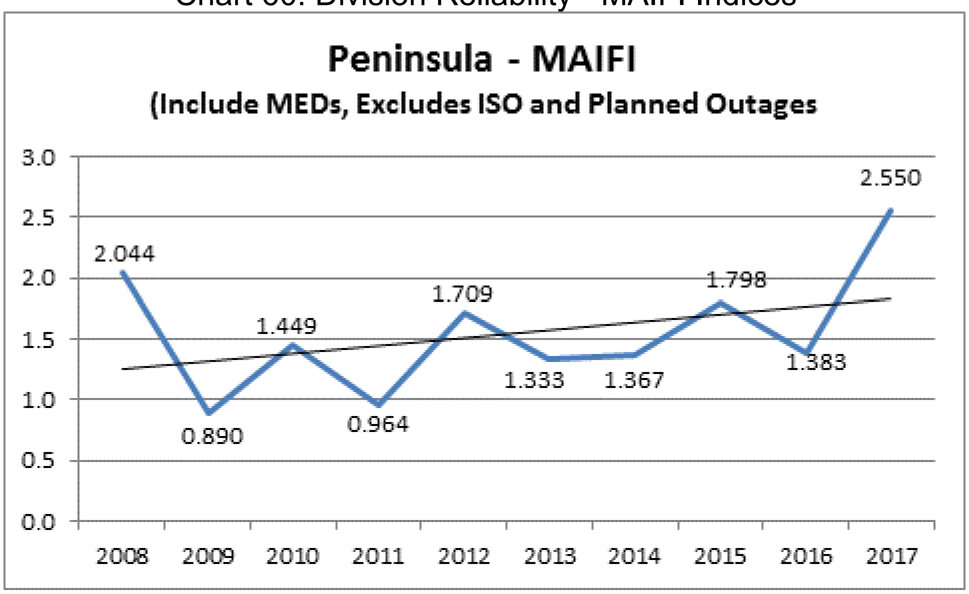


Chart 61: Division Reliability - MAIFI Indices

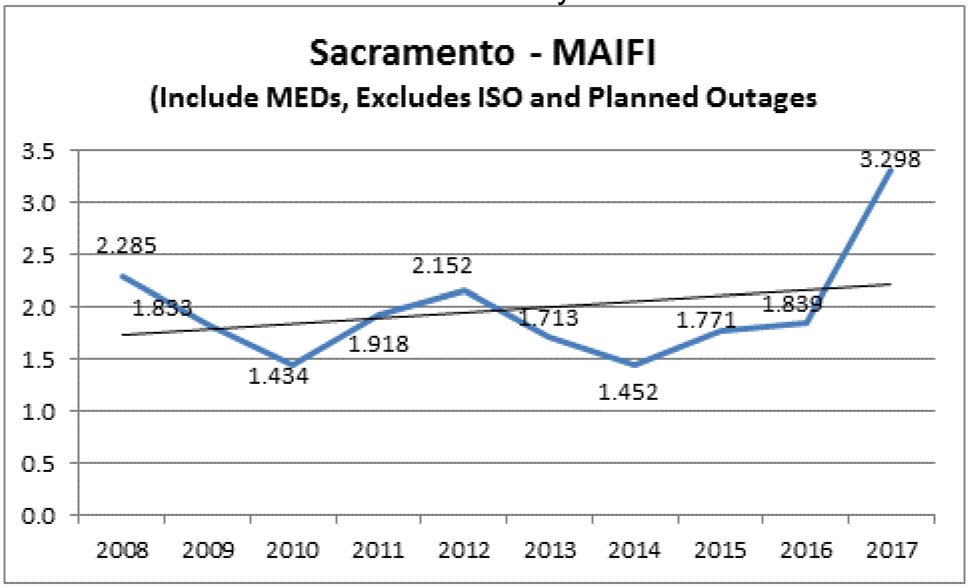


Chart 62: Division Reliability - MAIFI Indices

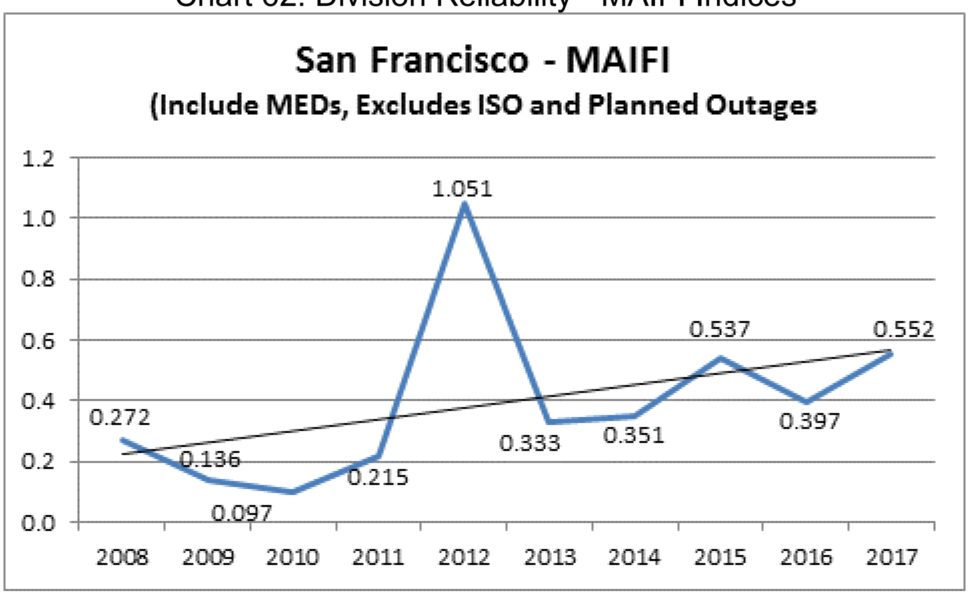


Chart 63: Division Reliability - MAIFI Indices

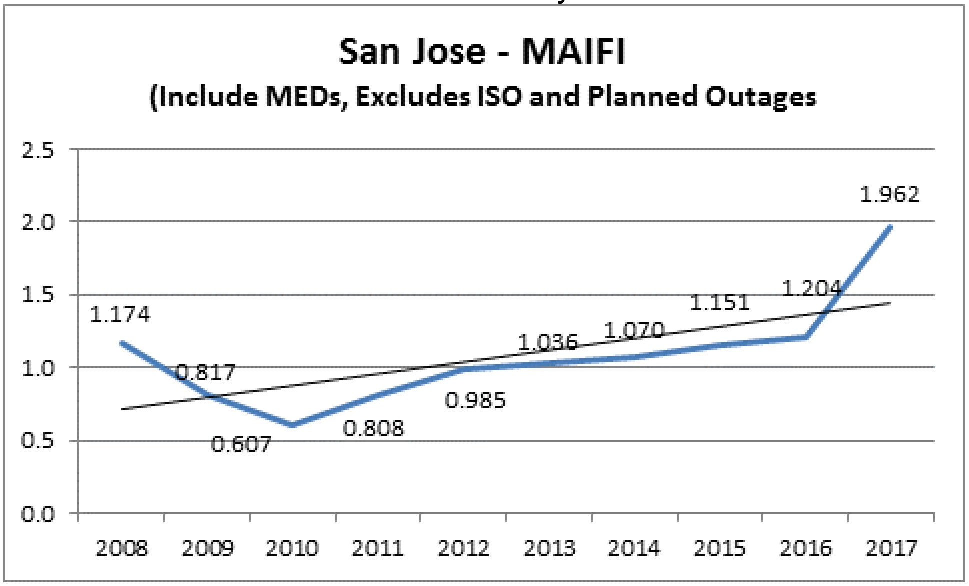


Chart 64: Division Reliability - MAIFI Indices

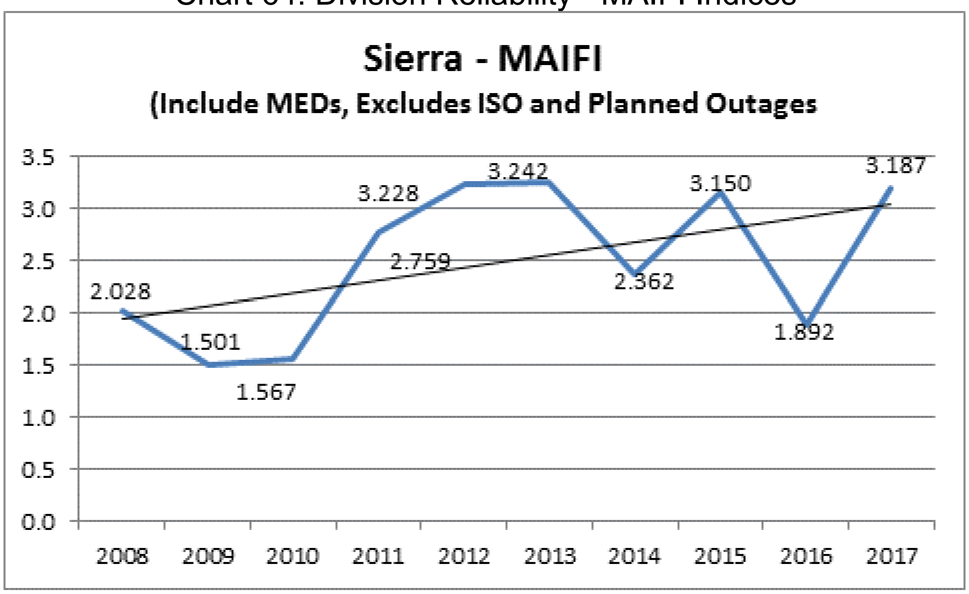


Chart 65: Division Reliability - MAIFI Indices

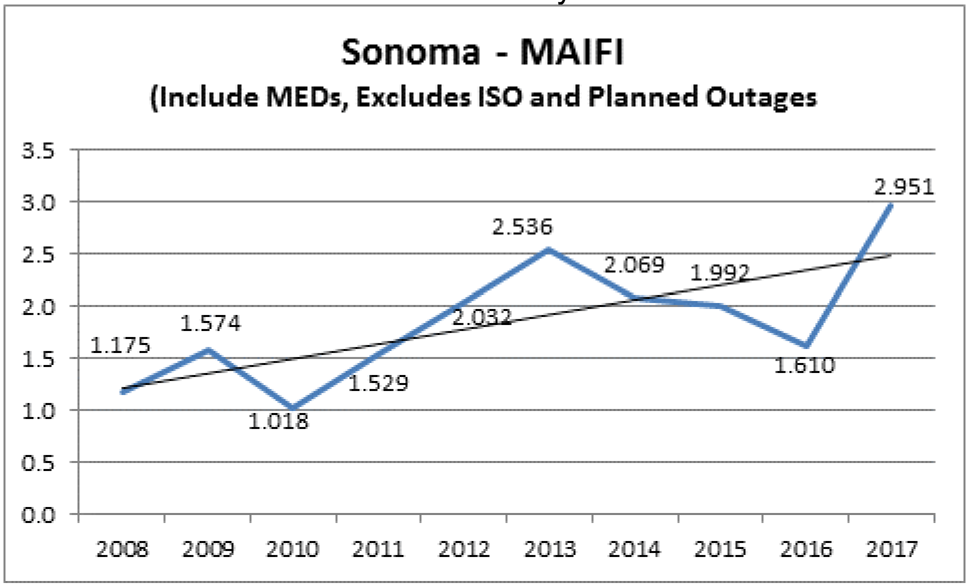


Chart 66: Division Reliability - MAIFI Indices

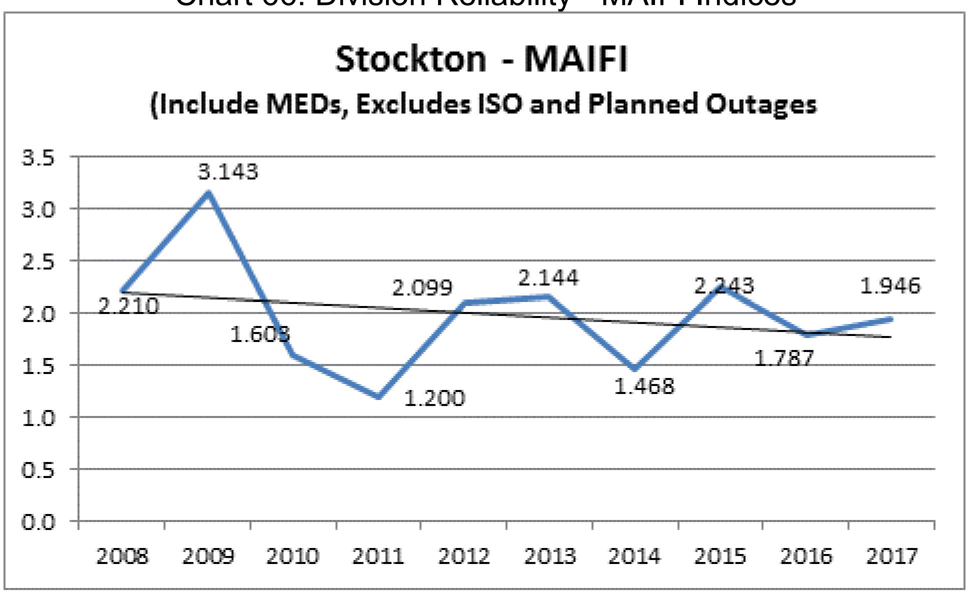
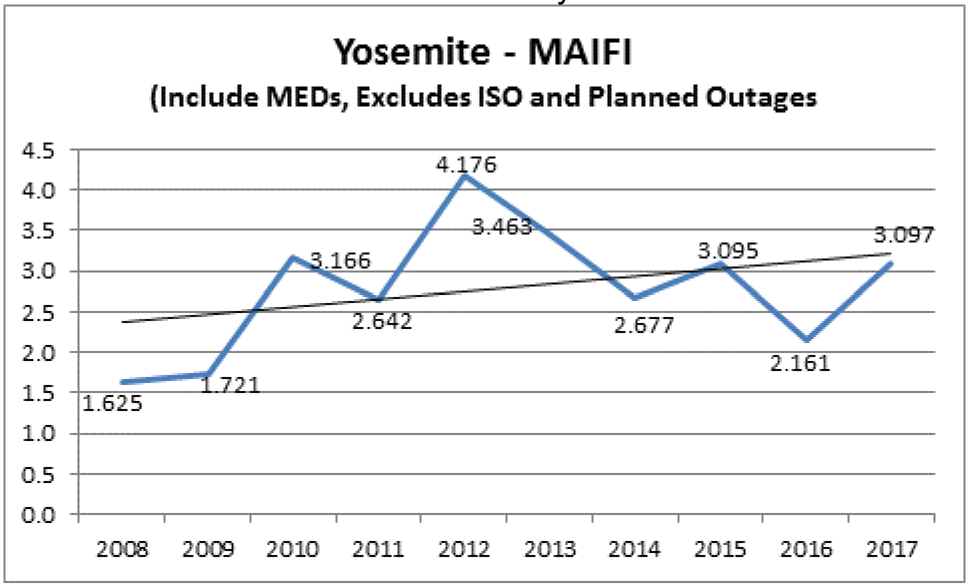


Chart 67: Division Reliability - MAIFI Indices



4. CAIDI Performance Results (MED Included)

Chart 68: Division Reliability - CAIDI Indices

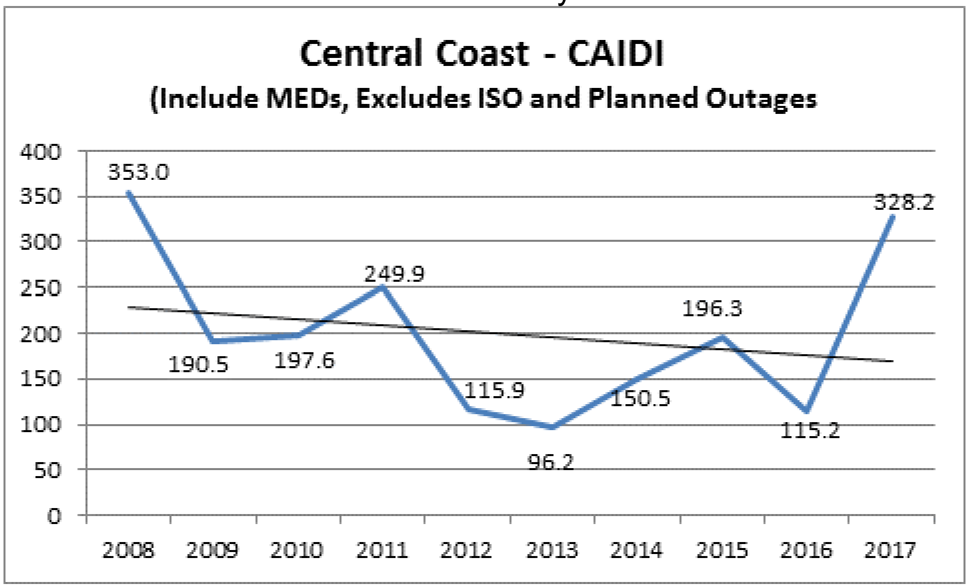


Chart 69: Division Reliability - CAIDI Indices

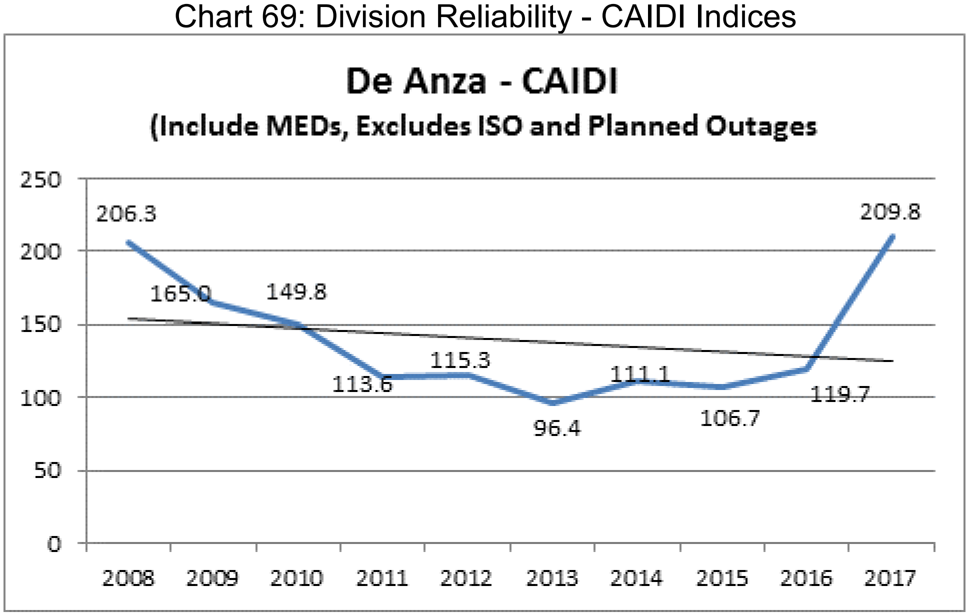


Chart 70: Division Reliability - CAIDI Indices

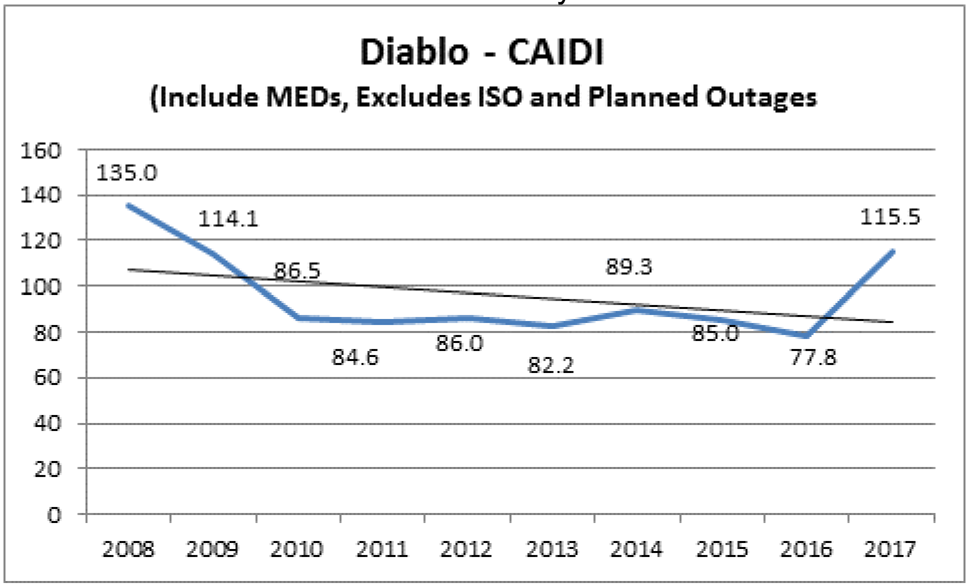


Chart 71: Division Reliability - CAIDI Indices

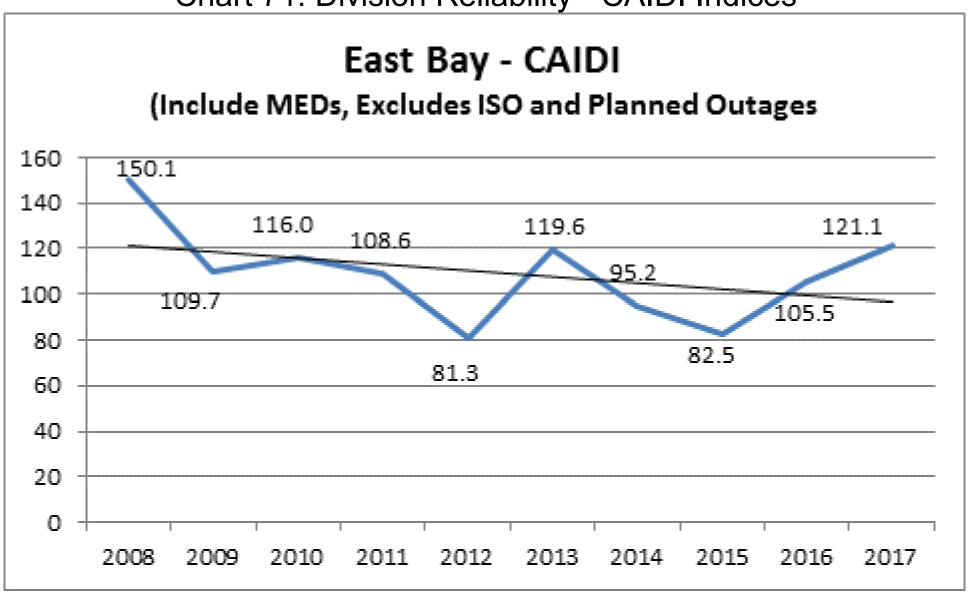


Chart 72: Division Reliability - CAIDI Indices

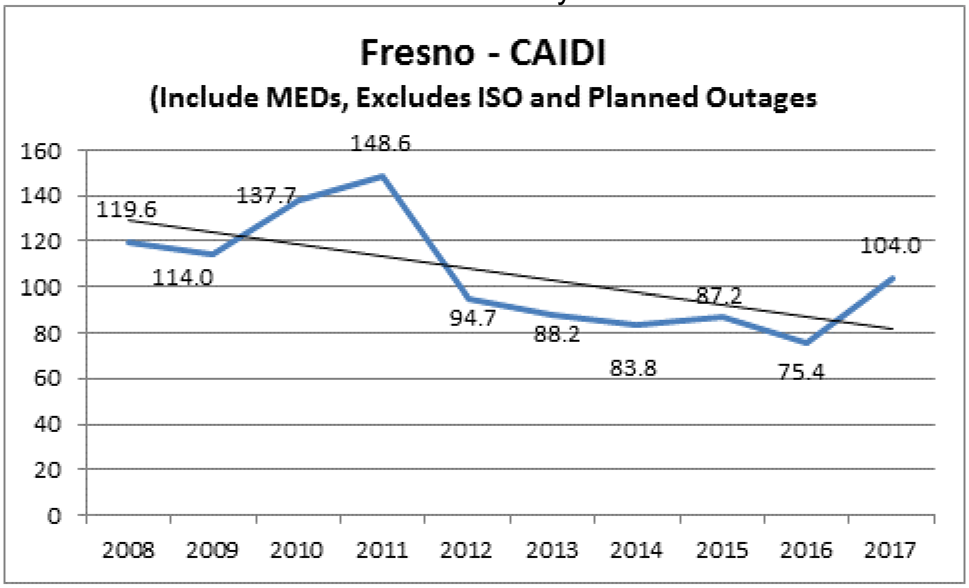


Chart 73: Division Reliability - CAIDI Indices

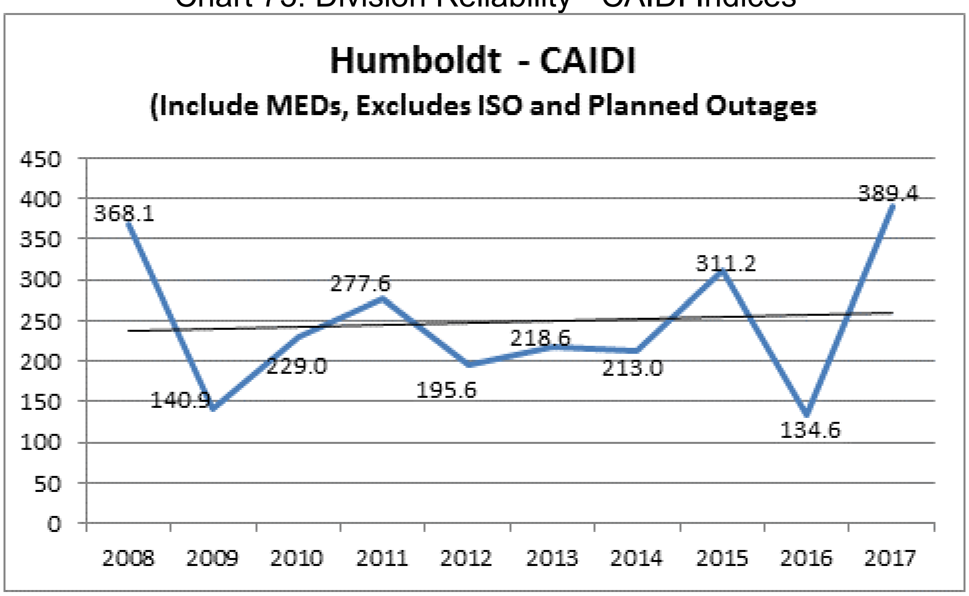


Chart 74: Division Reliability - CAIDI Indices

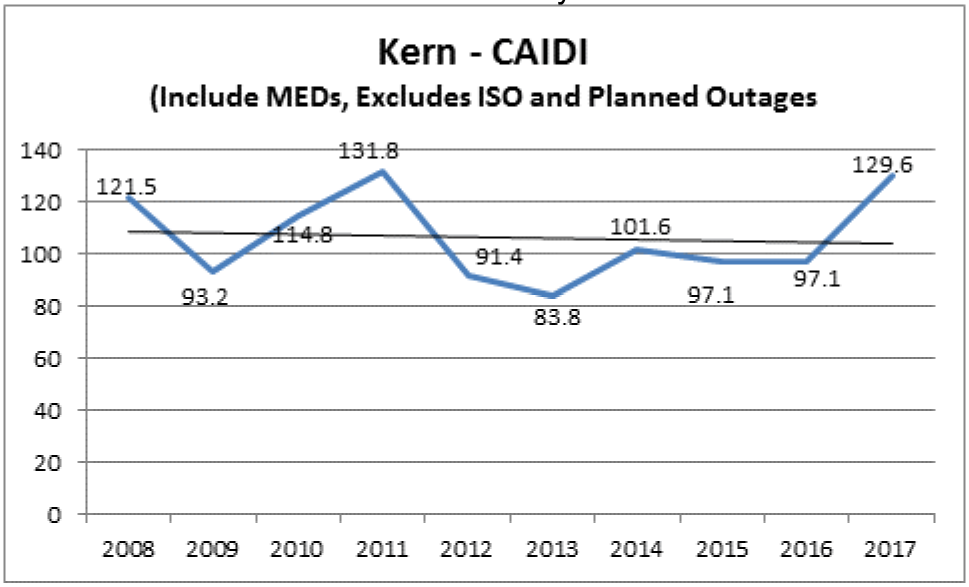


Chart 75: Division Reliability - CAIDI Indices

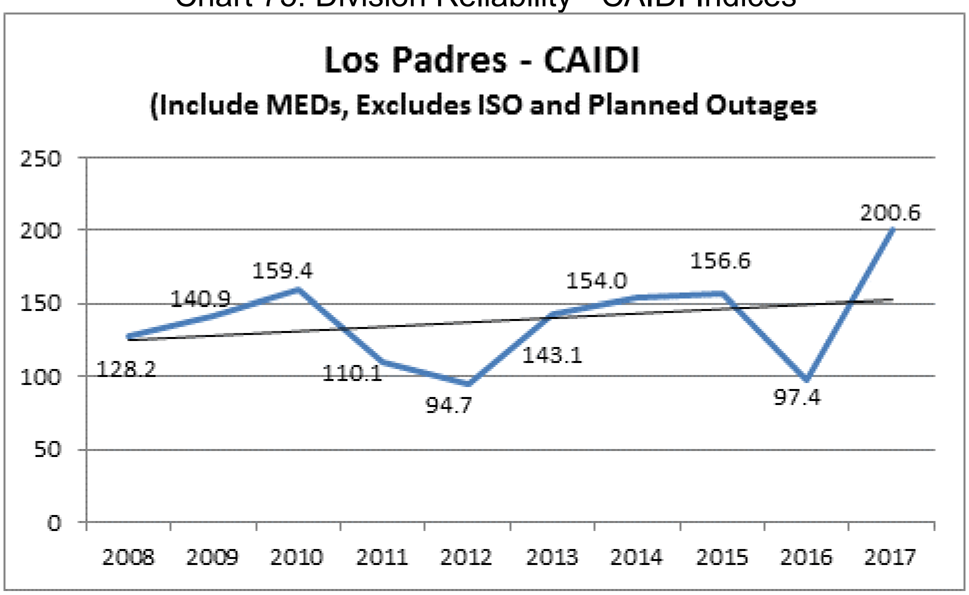


Chart 76: Division Reliability - CAIDI Indices

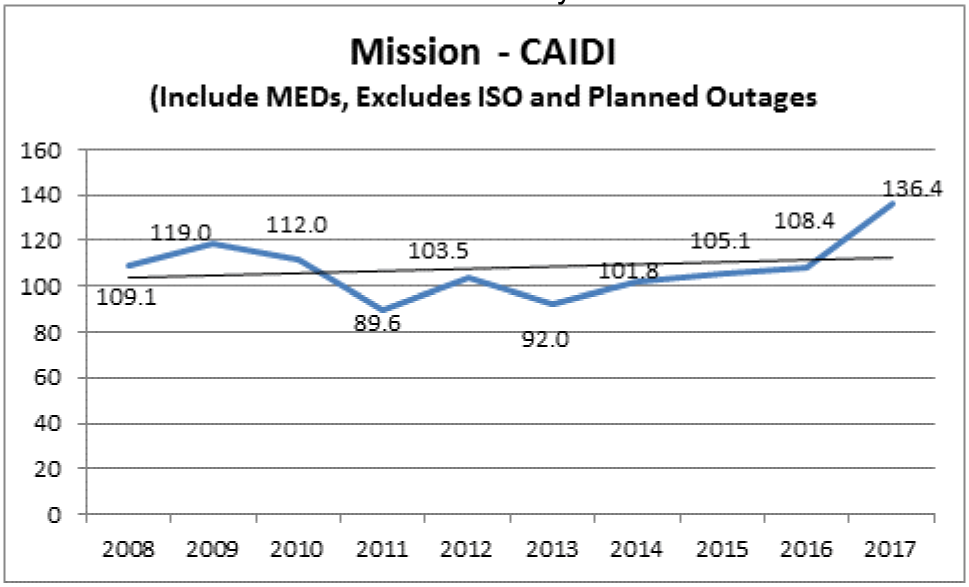


Chart 77: Division Reliability - CAIDI Indices

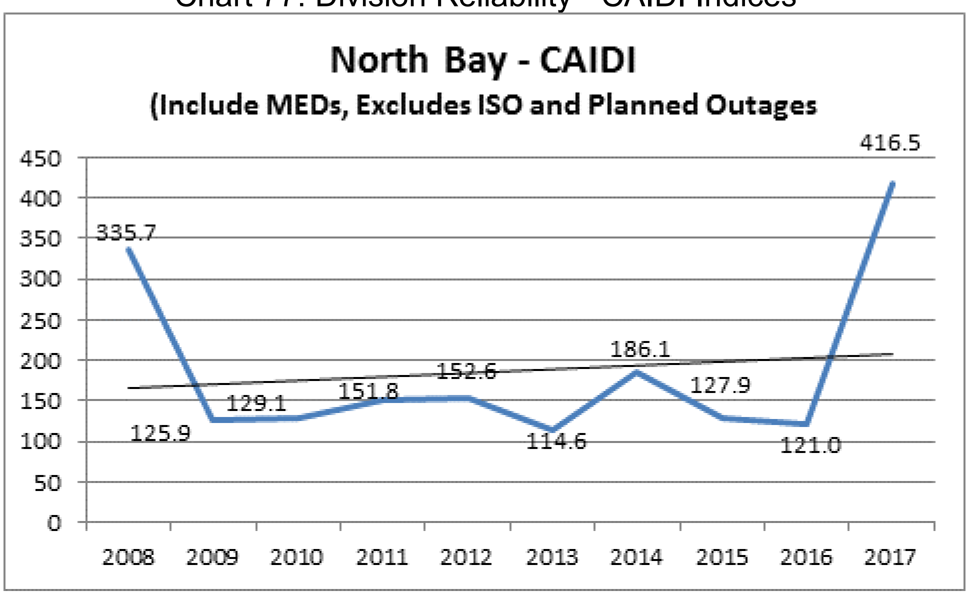


Chart 78: Division Reliability - CAIDI Indices

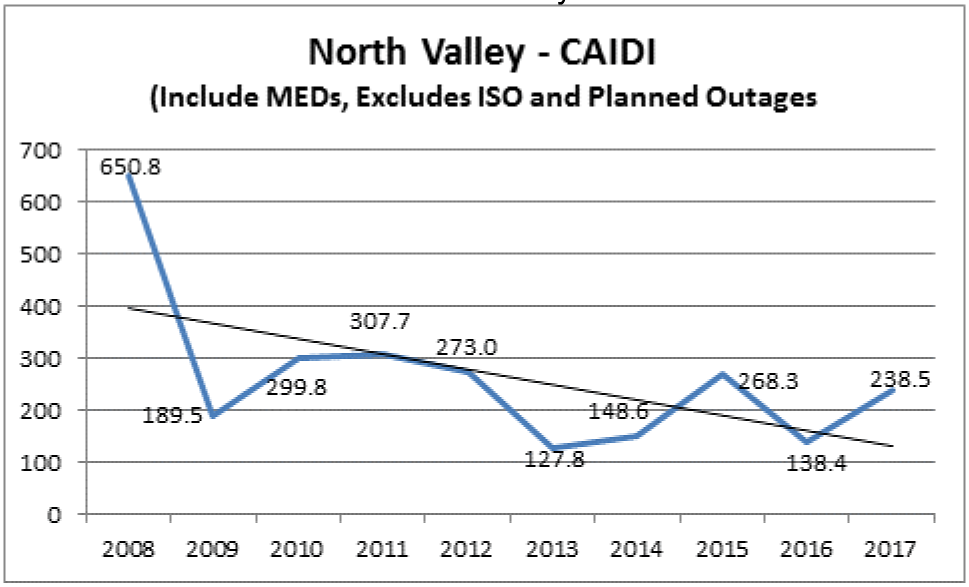


Chart 79: Division Reliability - CAIDI Indices

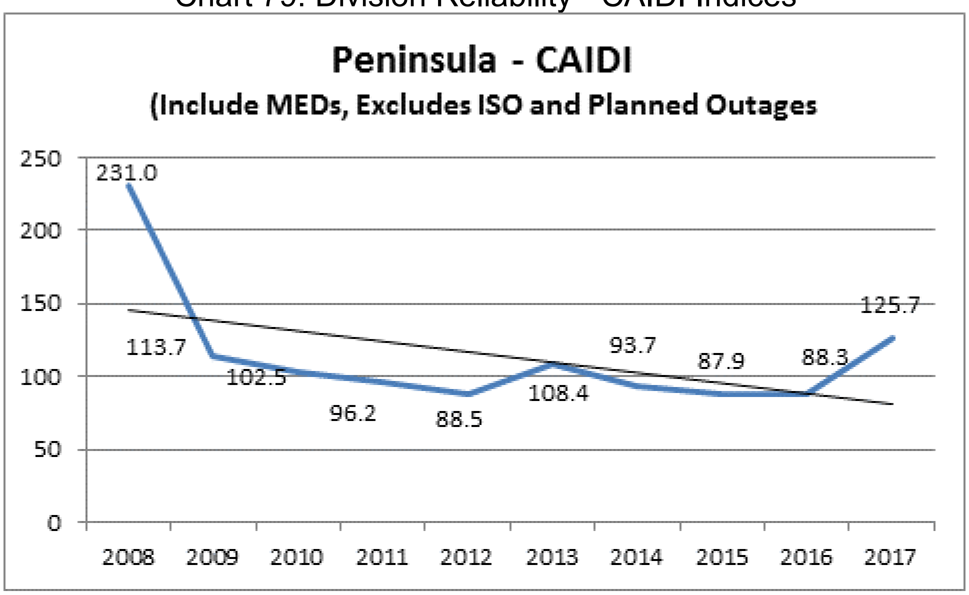


Chart 80: Division Reliability - CAIDI Indices

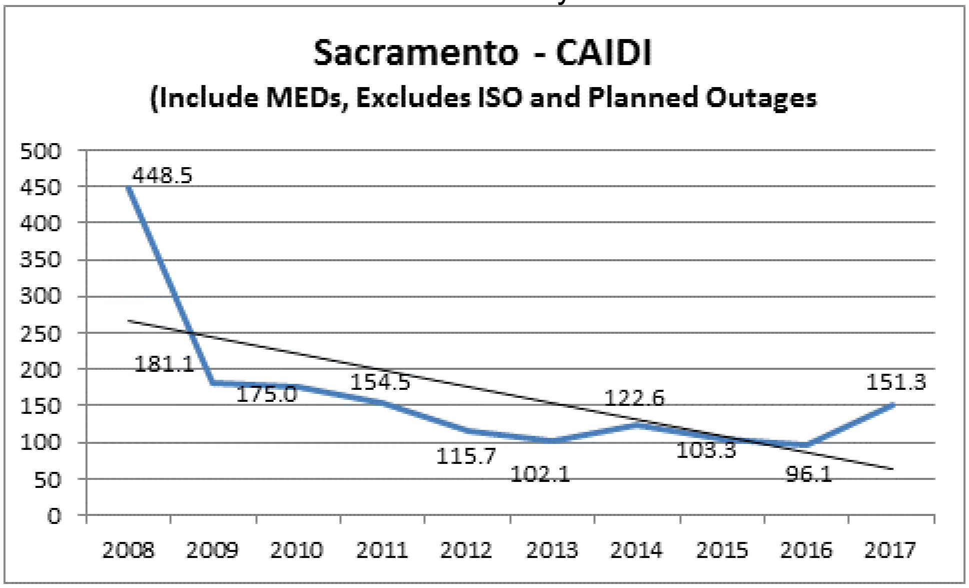


Chart 81: Division Reliability - CAIDI Indices

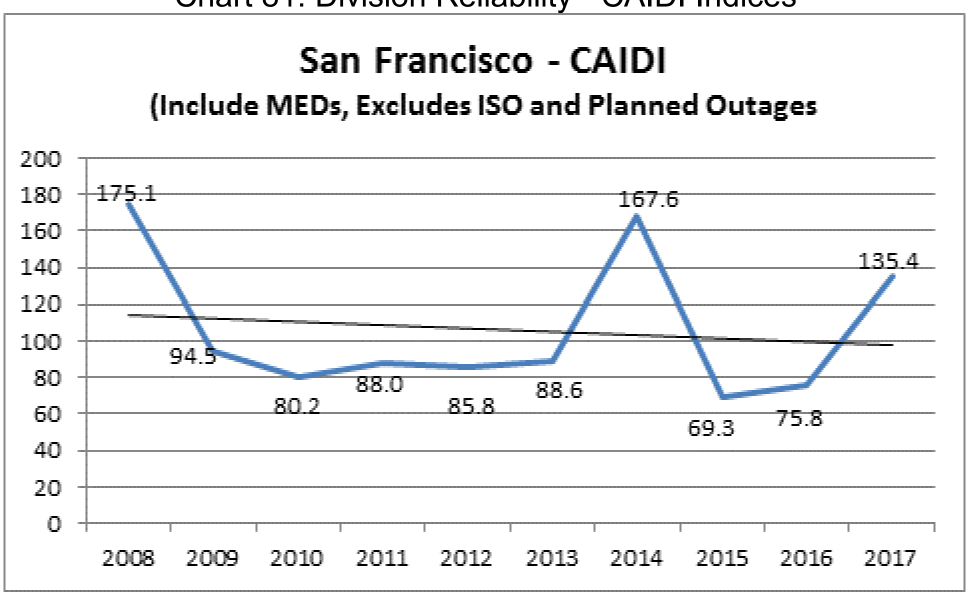


Chart 82: Division Reliability - CAIDI Indices

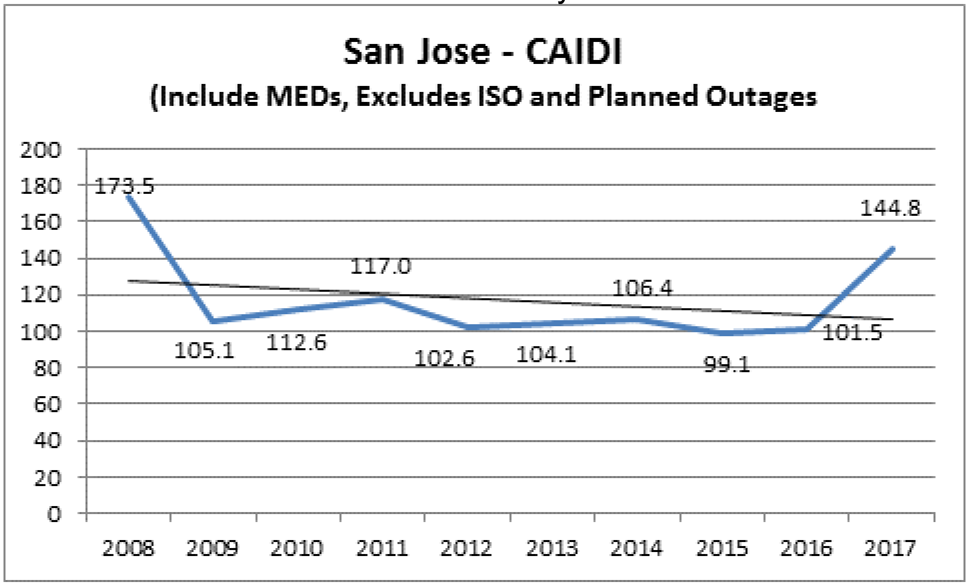


Chart 83: Division Reliability - CAIDI Indices

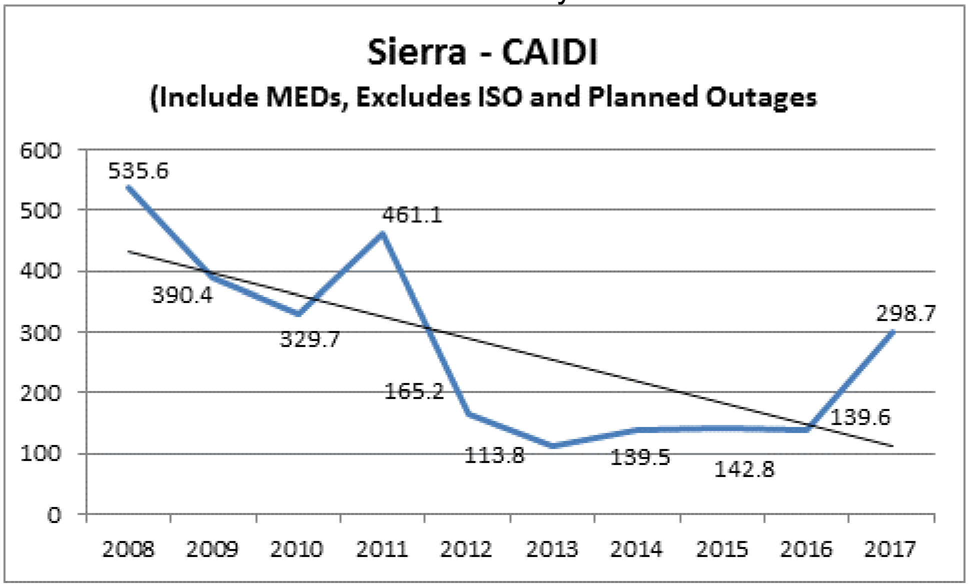


Chart 84: Division Reliability - CAIDI Indices

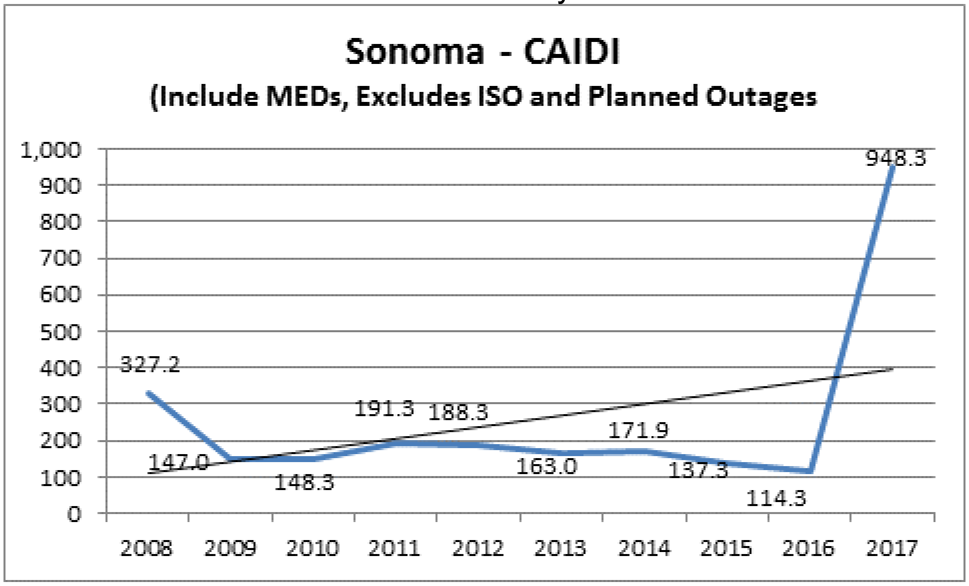


Chart 85: Division Reliability - CAIDI Indices

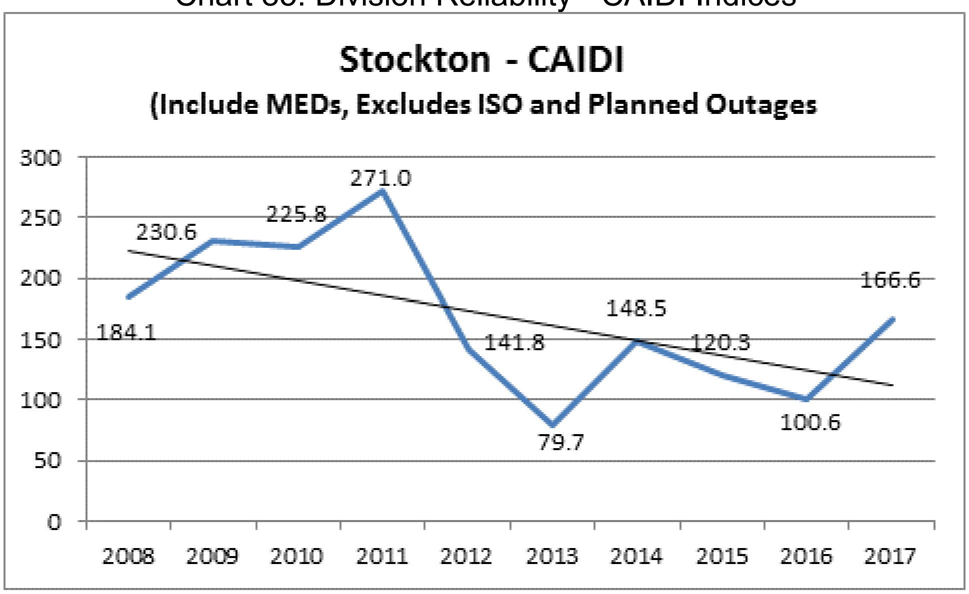
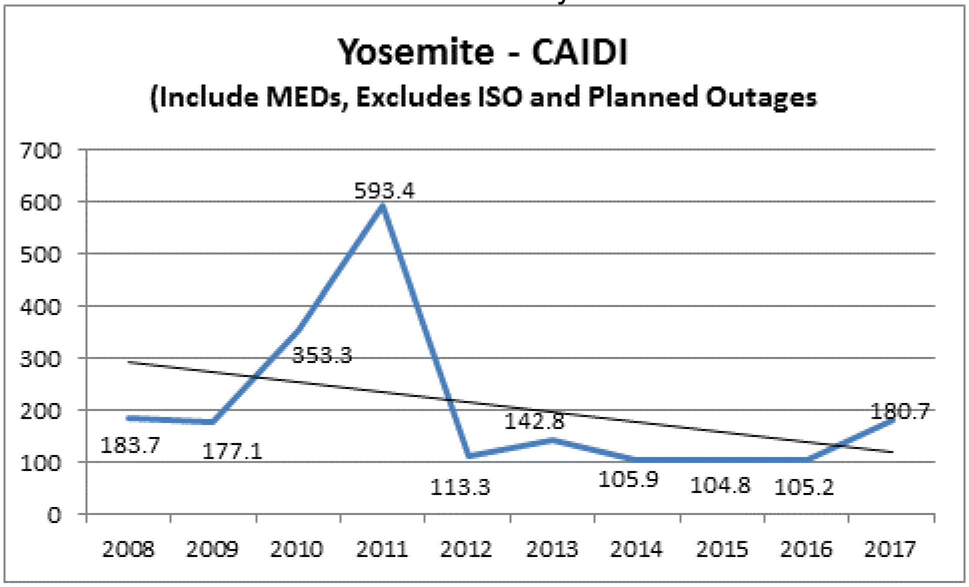


Chart 86: Division Reliability - CAIDI Indices



ii. **Charts for Division Reliability Indices for the past 10 years with linear trend line excluding ISO, planned outages and MED**

1. AIDI Performance Results (MED Excluded)

Chart 87: Division Reliability - AIDI Indices

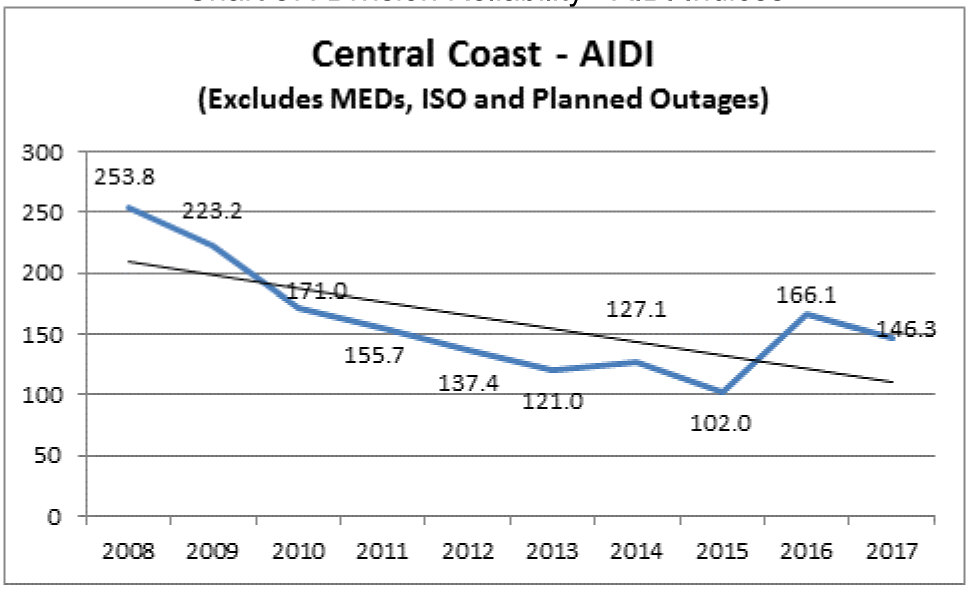


Chart 88: Division Reliability - AIDI Indices

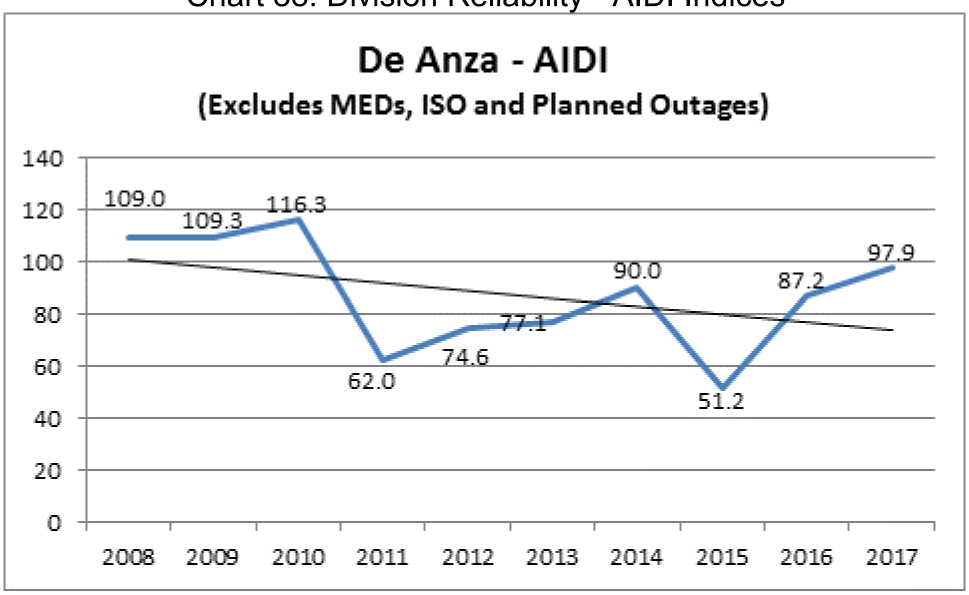


Chart 89: Division Reliability - AIDI Indices

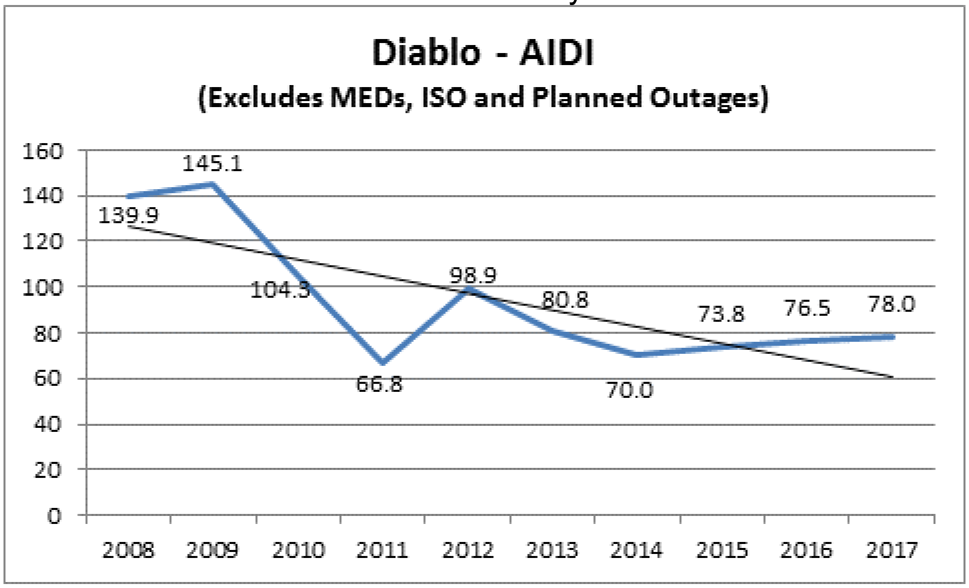


Chart 90: Division Reliability - AIDI Indices

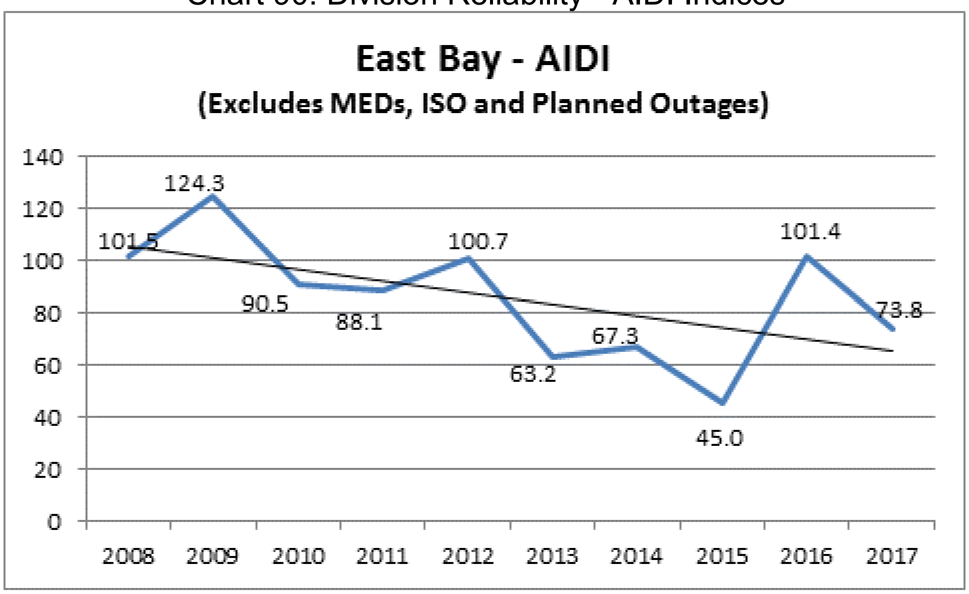


Chart 91: Division Reliability - AIDI Indices

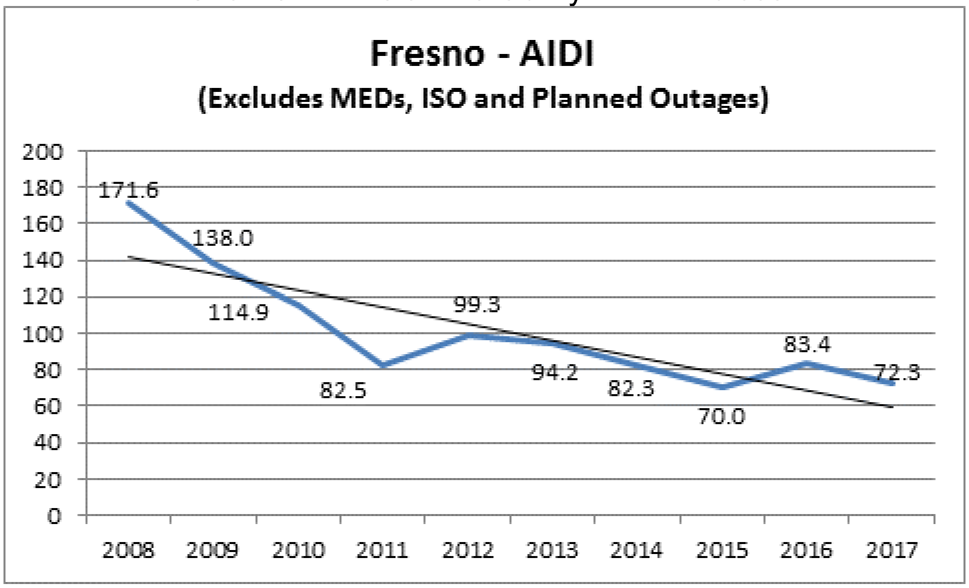


Chart 92: Division Reliability - AIDI Indices

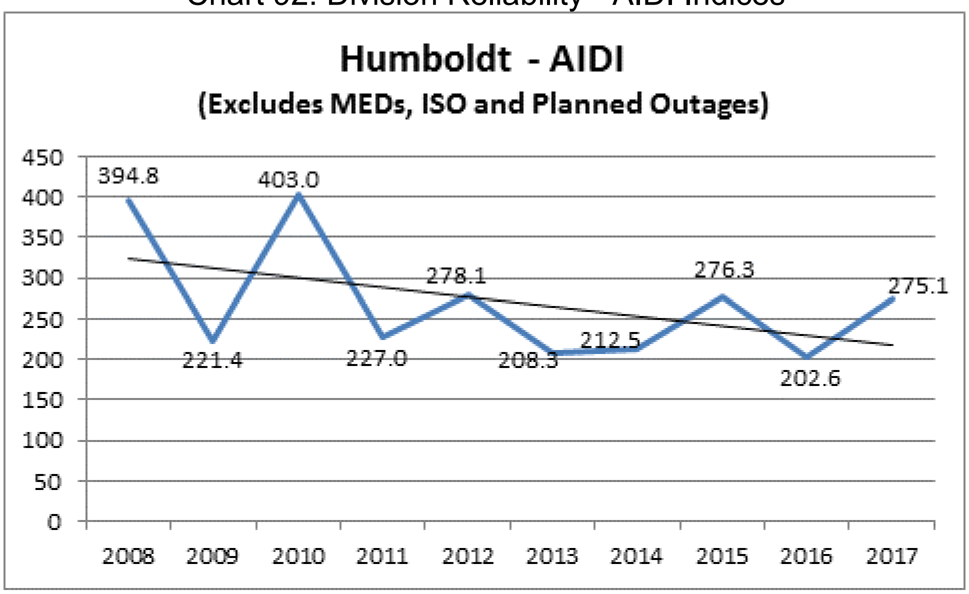


Chart 93: Division Reliability - AIDI Indices

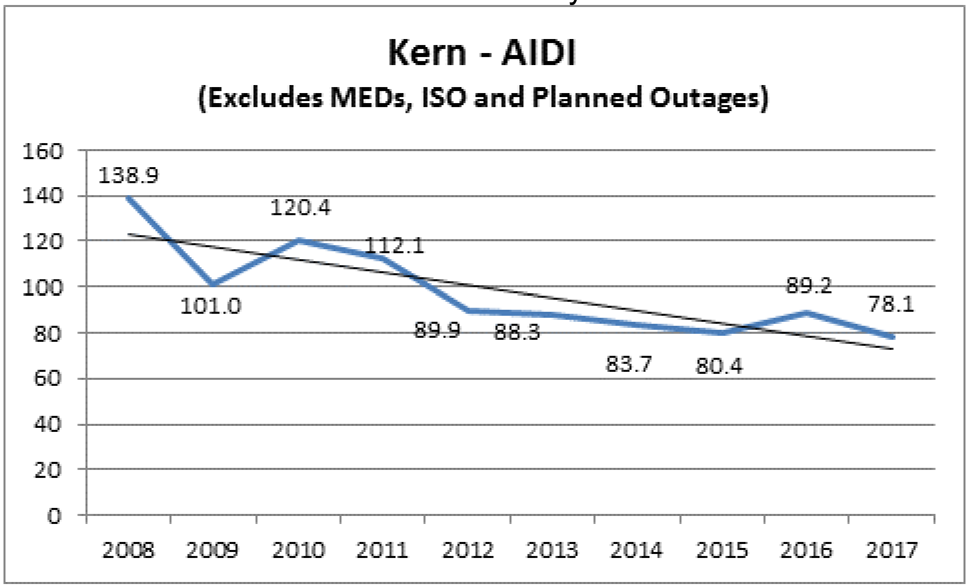


Chart 94: Division Reliability - AIDI Indices

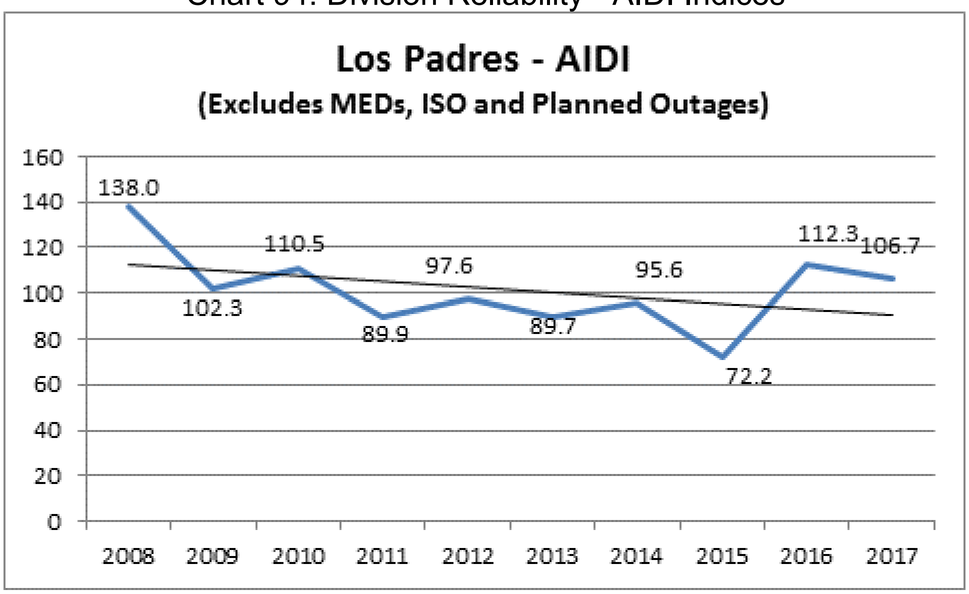


Chart 95: Division Reliability - AIDI Indices

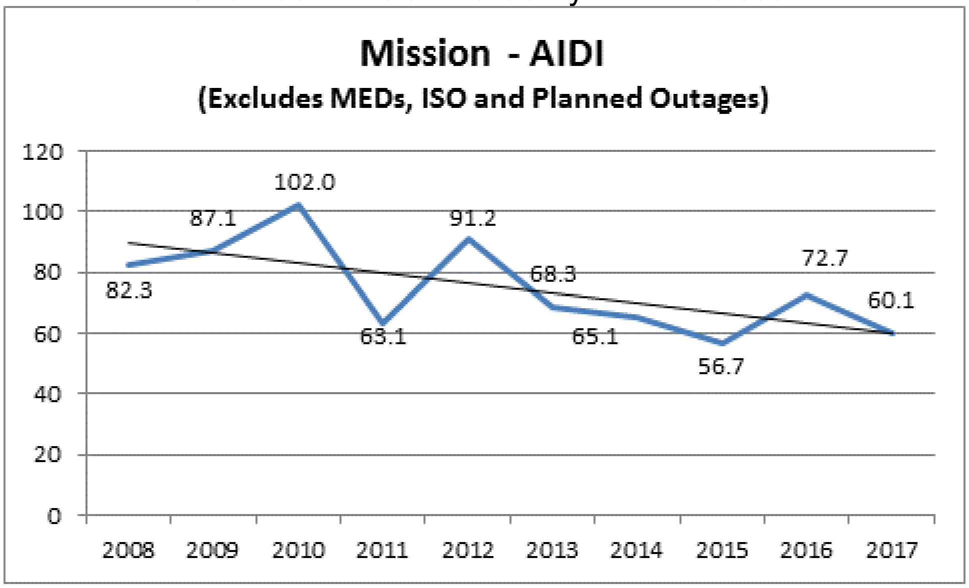


Chart 96: Division Reliability - AIDI Indices

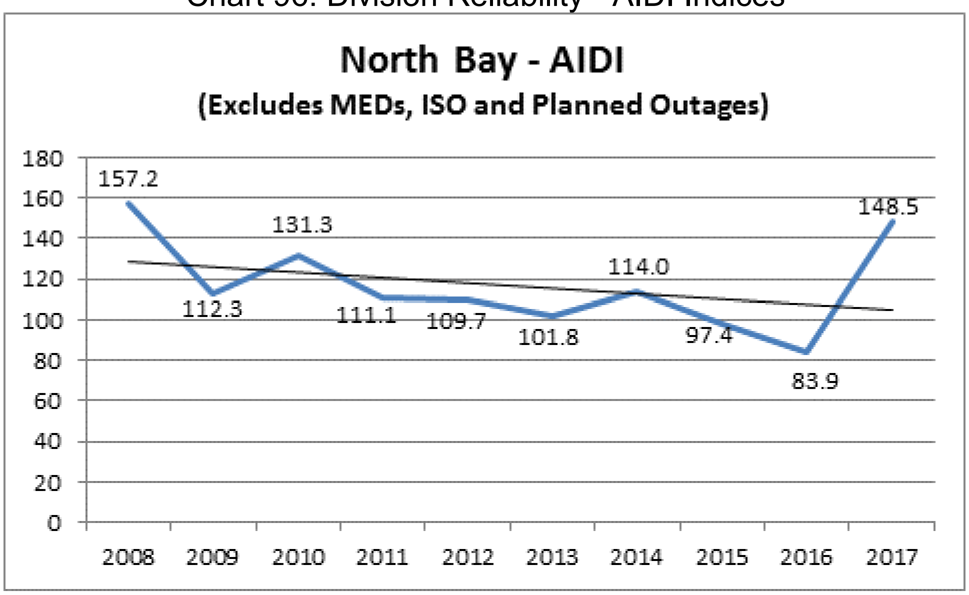


Chart 97: Division Reliability - AIDI Indices

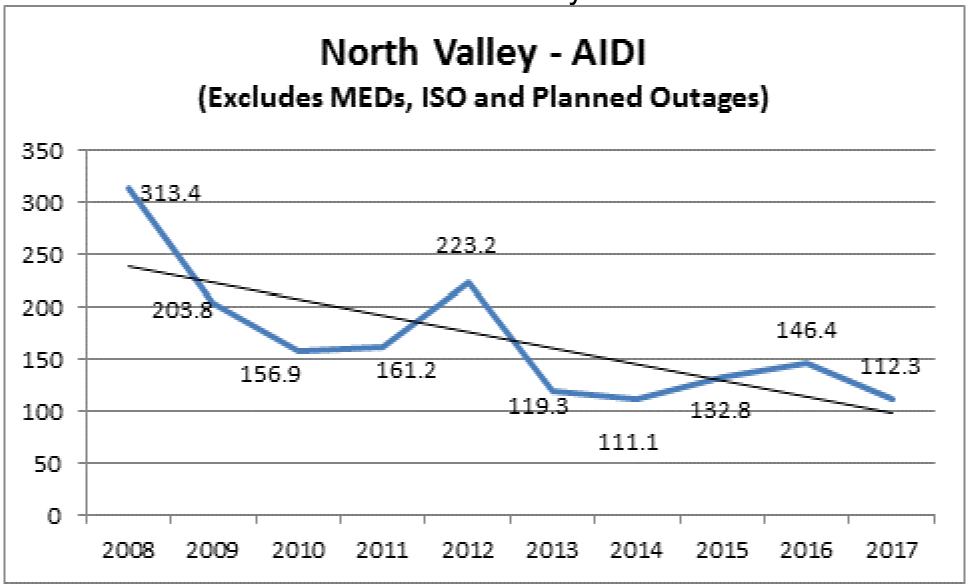


Chart 98: Division Reliability - AIDI Indices

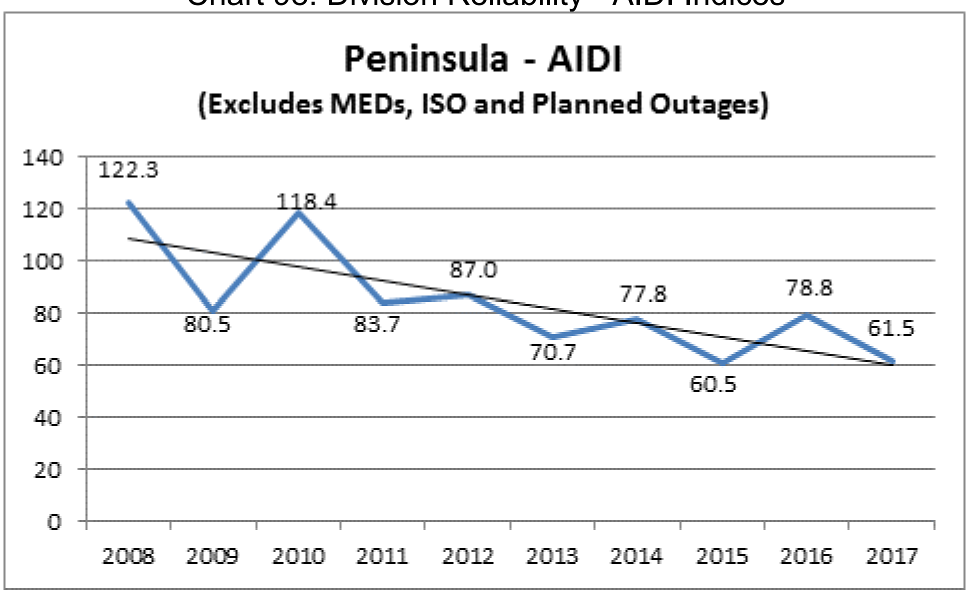


Chart 99: Division Reliability - AIDI Indices

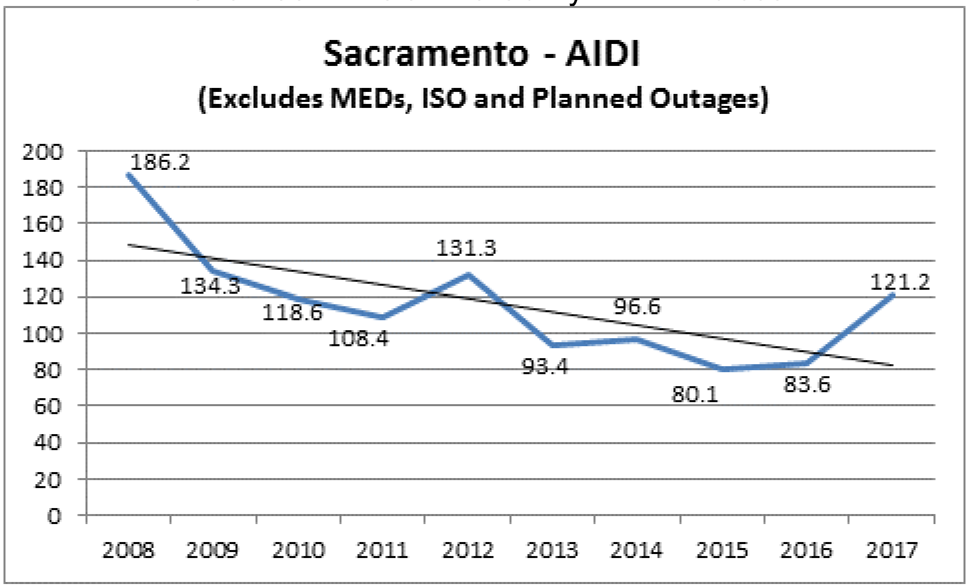


Chart 100: Division Reliability - AIDI Indices

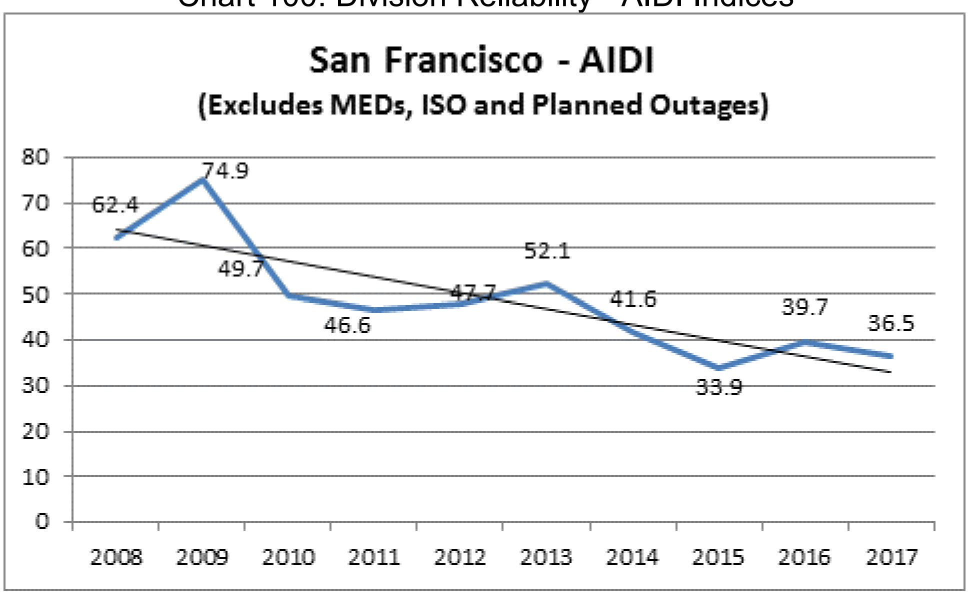


Chart 101: Division Reliability - AIDI Indices

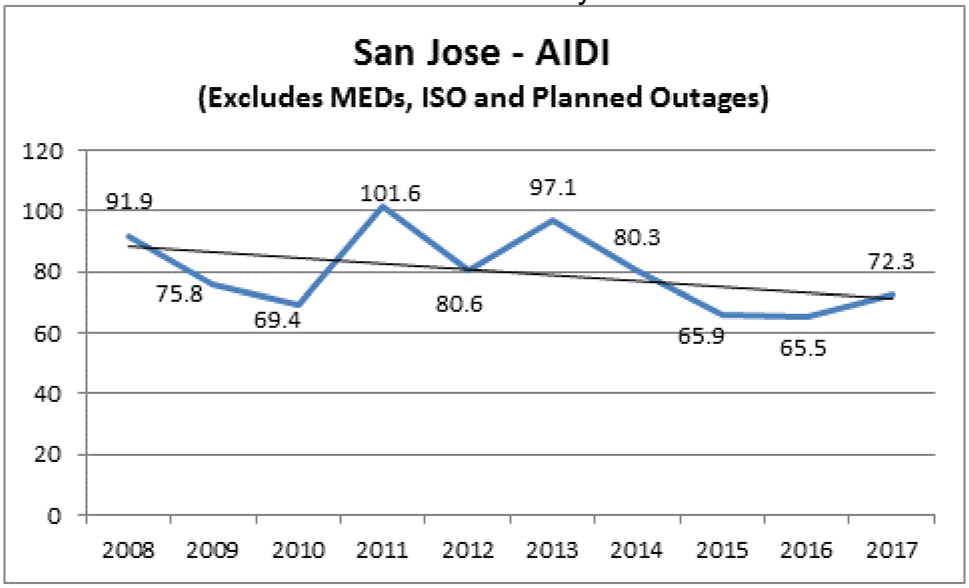


Chart 102: Division Reliability - AIDI Indices

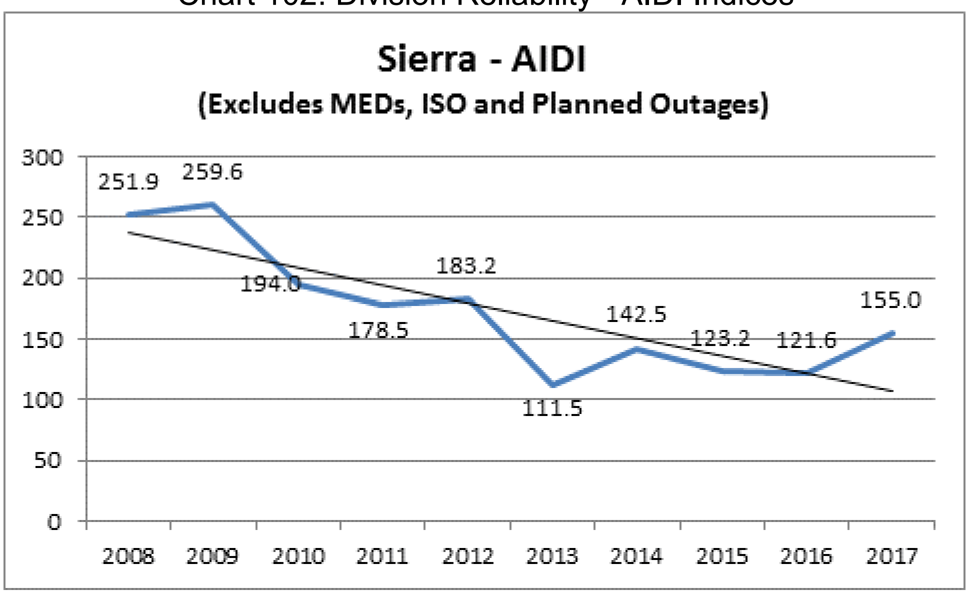


Chart 103: Division Reliability - AIDI Indices

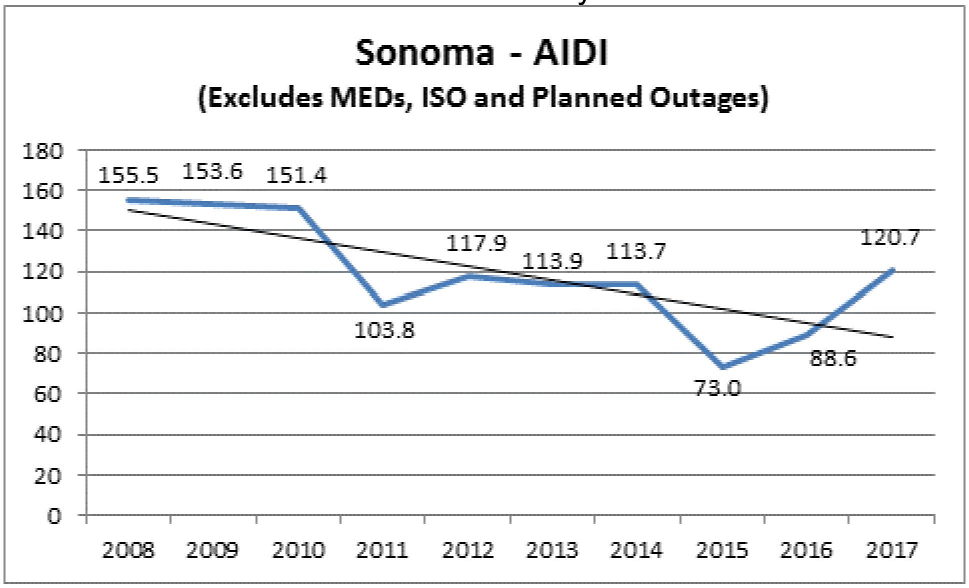


Chart 104: Division Reliability - AIDI Indices

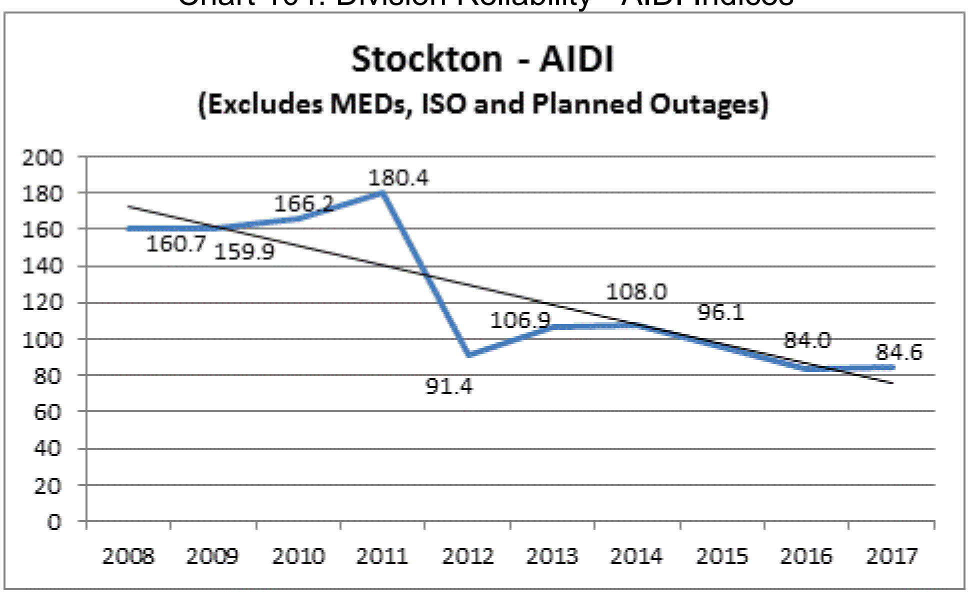
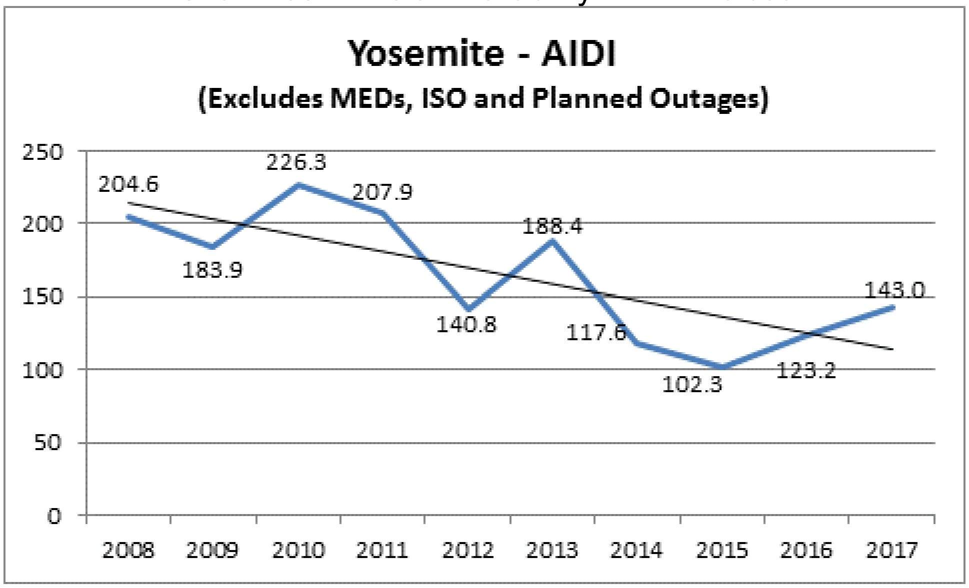


Chart 105: Division Reliability - AIDI Indices



2. AIFI Performance Results (MED Excluded)

Chart 106: Division Reliability - AIFI Indices

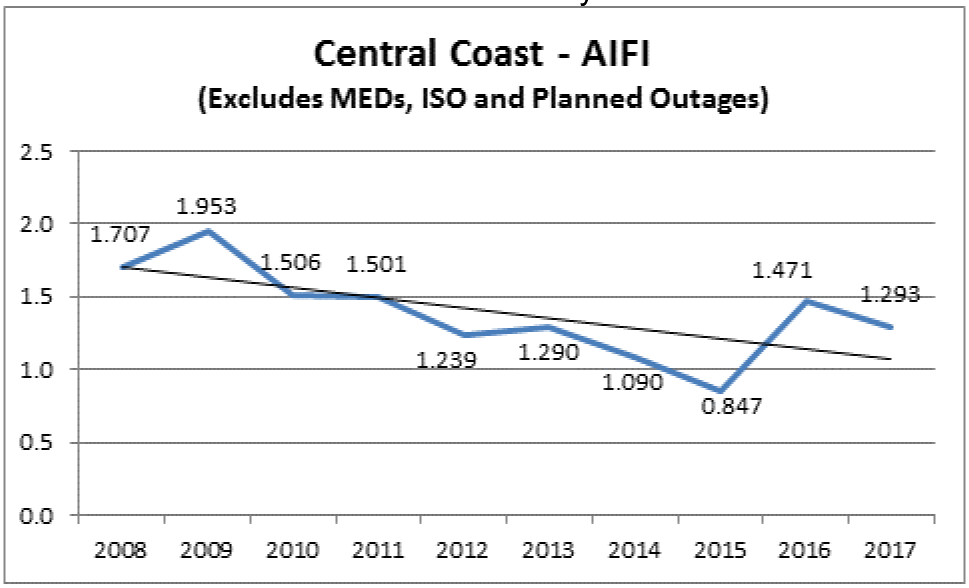


Chart 107: Division Reliability - AIFI Indices

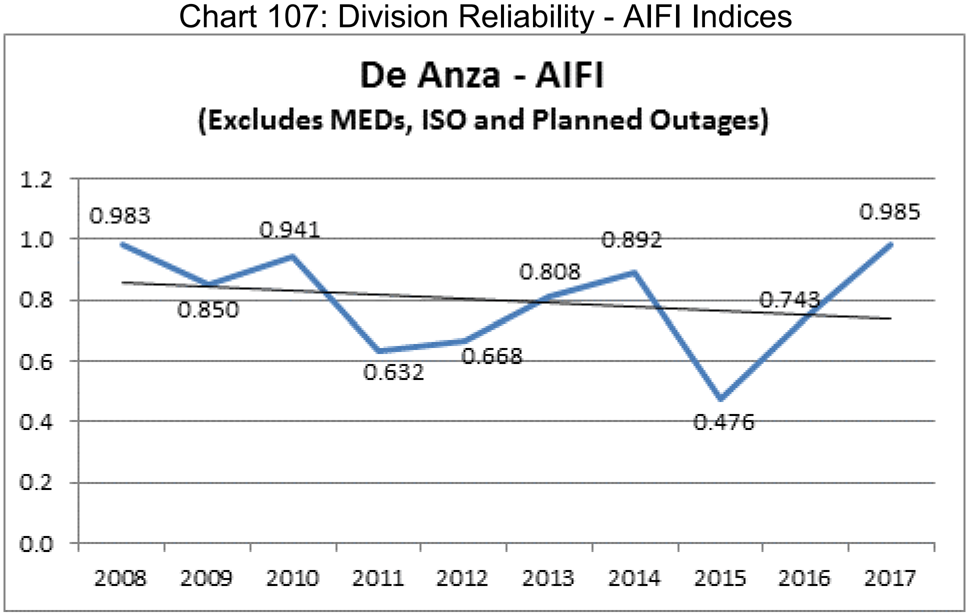


Chart 108: Division Reliability - AIFI Indices

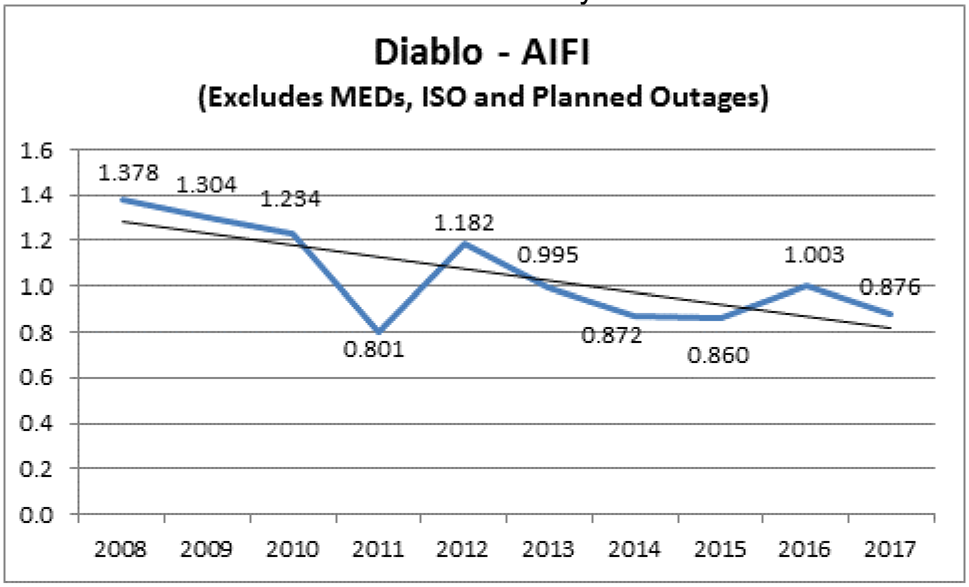


Chart 109: Division Reliability - AIFI Indices

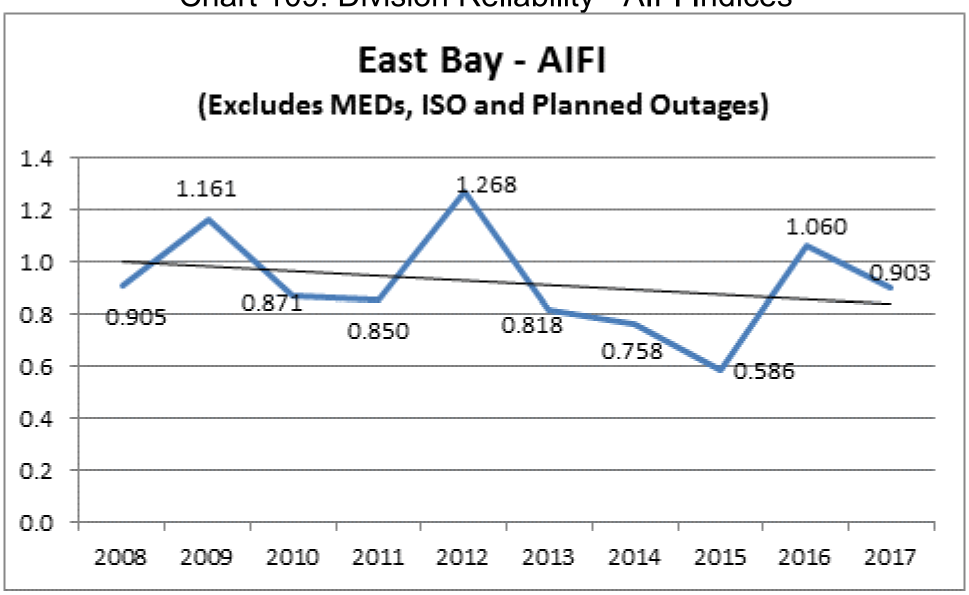


Chart 110: Division Reliability - AIFI Indices

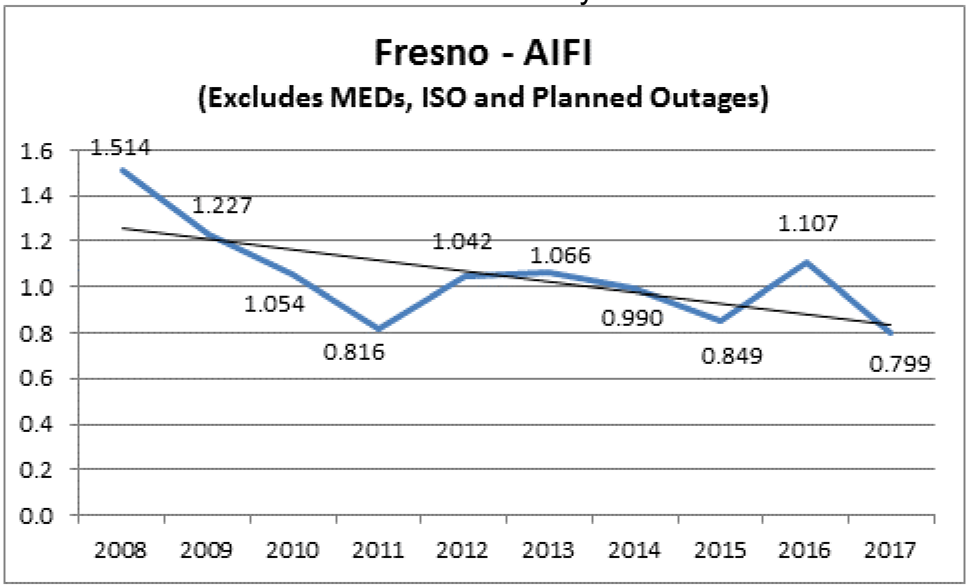


Chart 111: Division Reliability - AIFI Indices

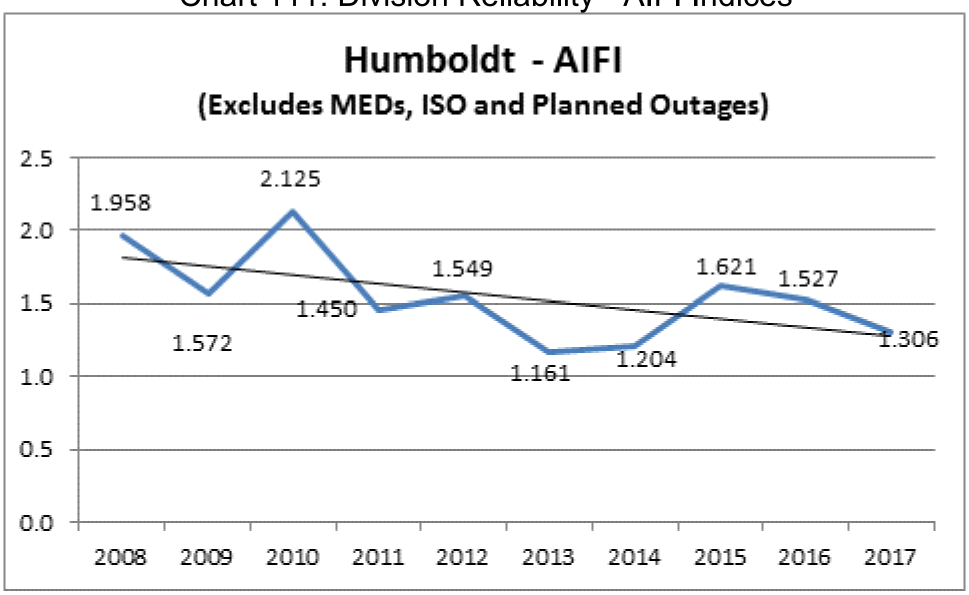


Chart 112: Division Reliability - AIFI Indices

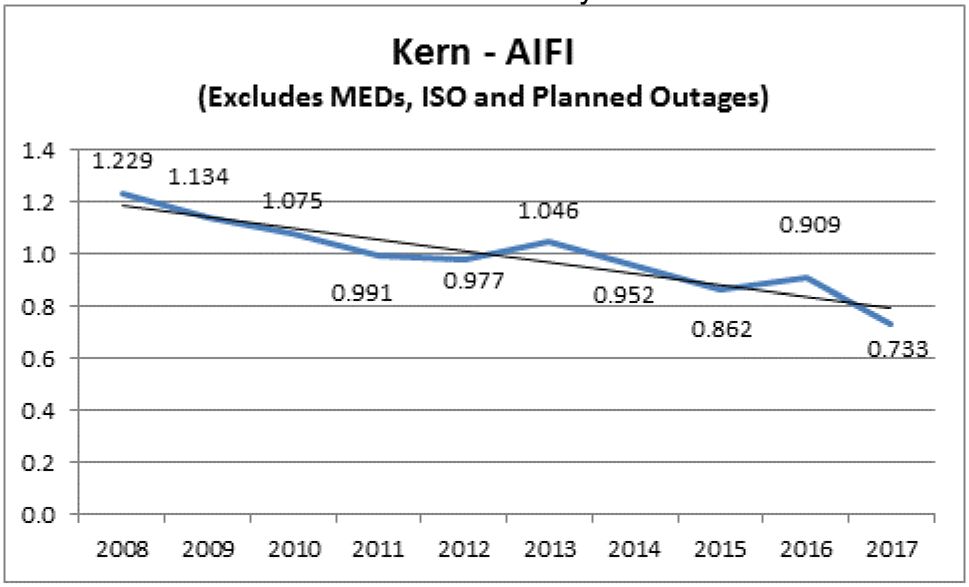


Chart 113: Division Reliability - AIFI Indices

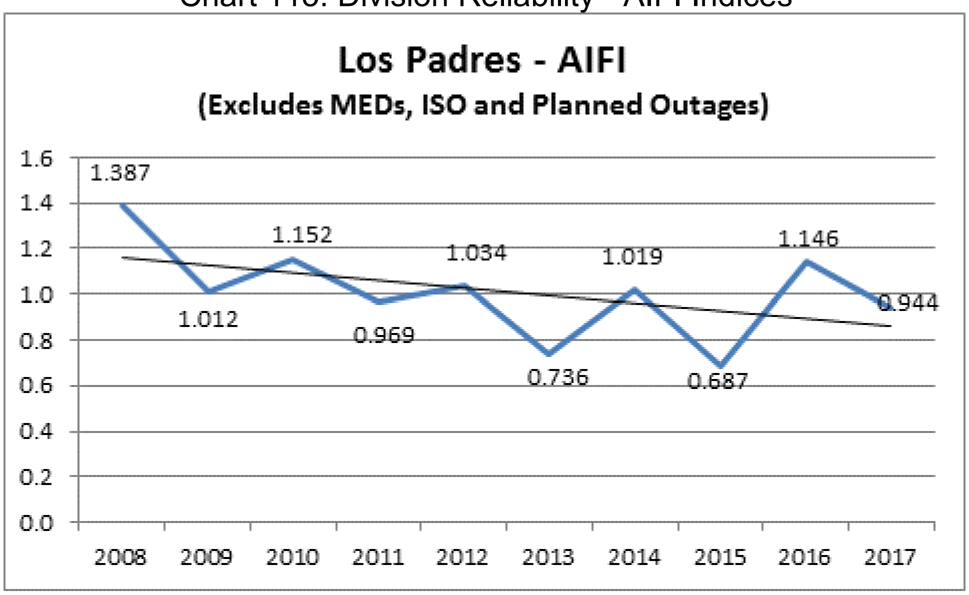


Chart 114: Division Reliability - AIFI Indices

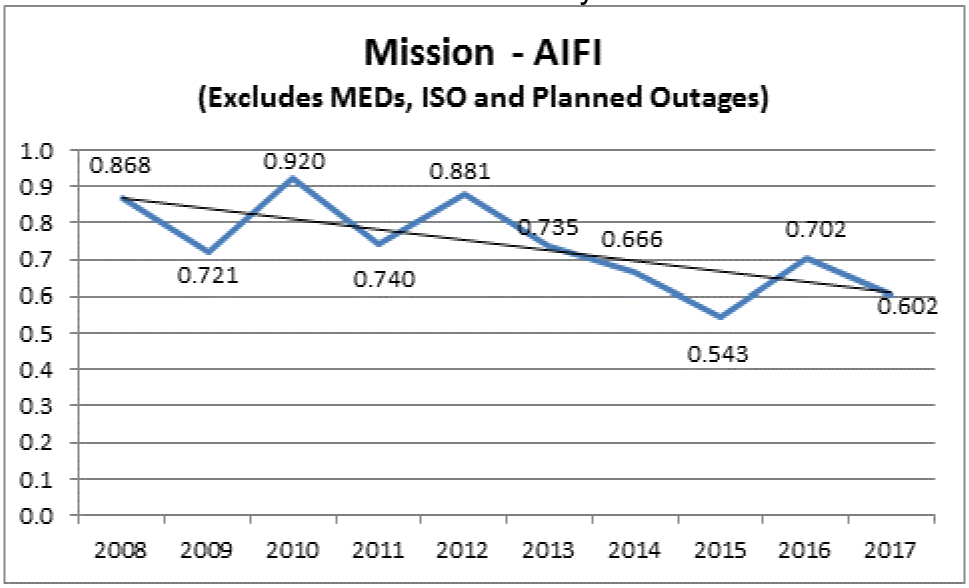


Chart 115: Division Reliability - AIFI Indices

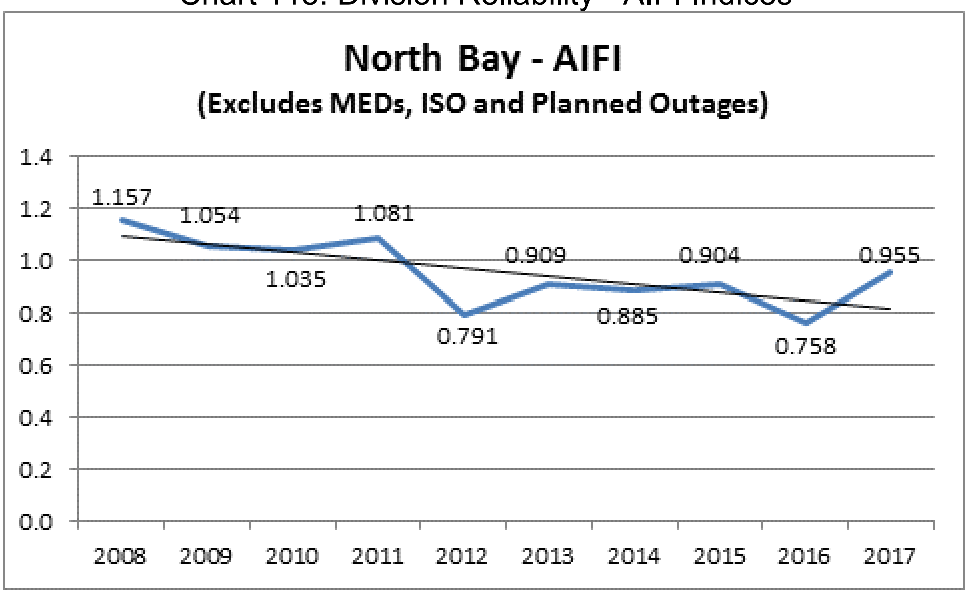


Chart 116: Division Reliability - AIFI Indices

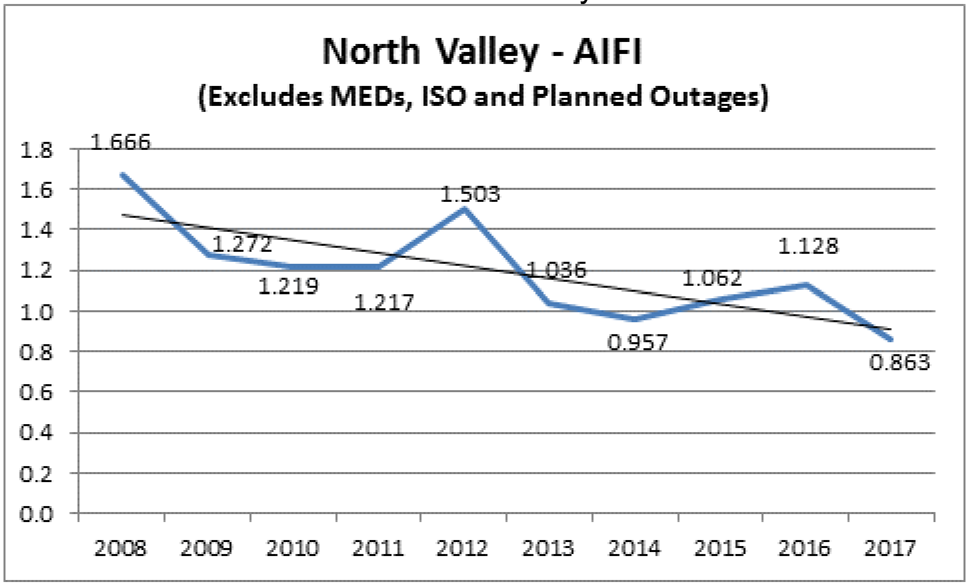


Chart 117: Division Reliability - AIFI Indices

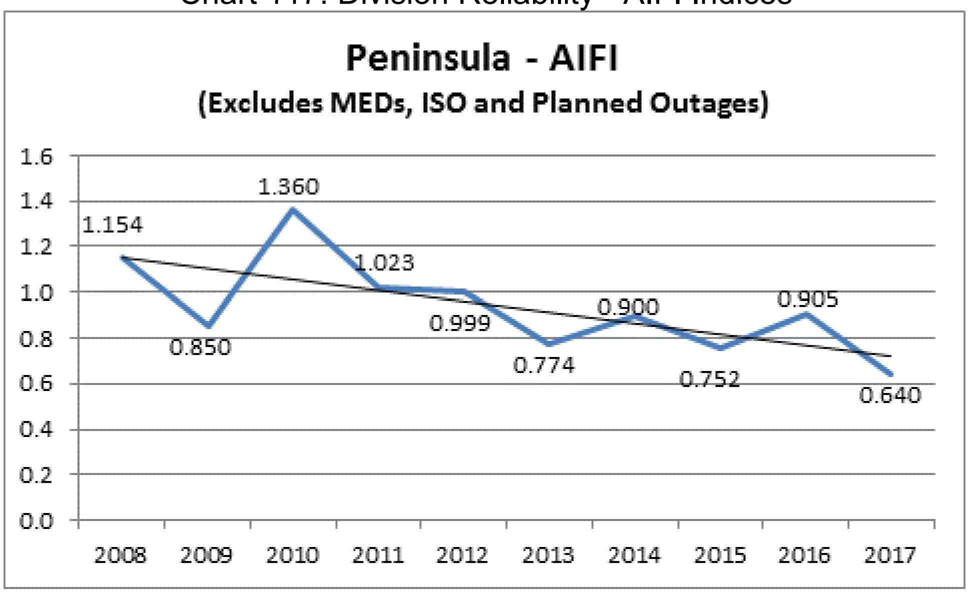


Chart 118: Division Reliability - AIFI Indices

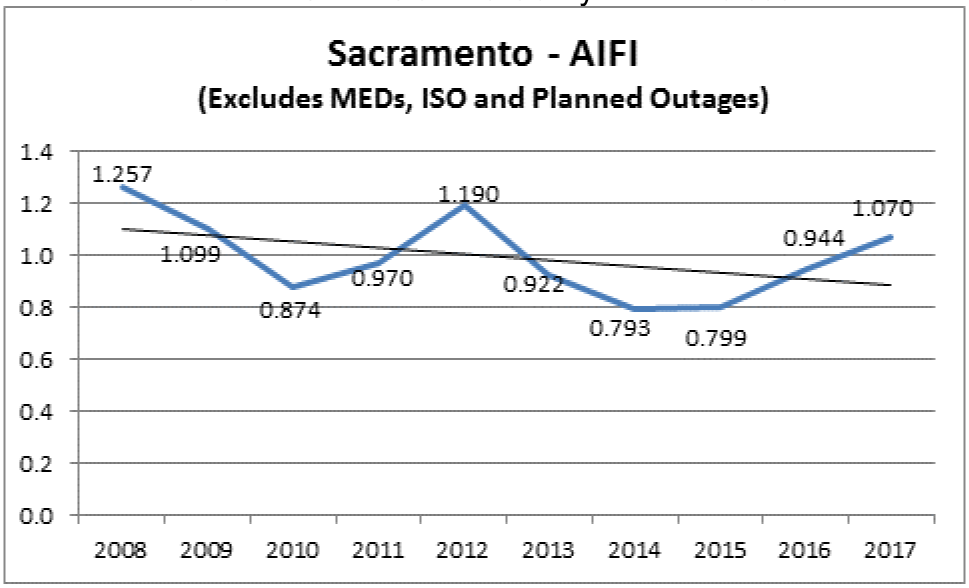


Chart 119: Division Reliability - AIFI Indices

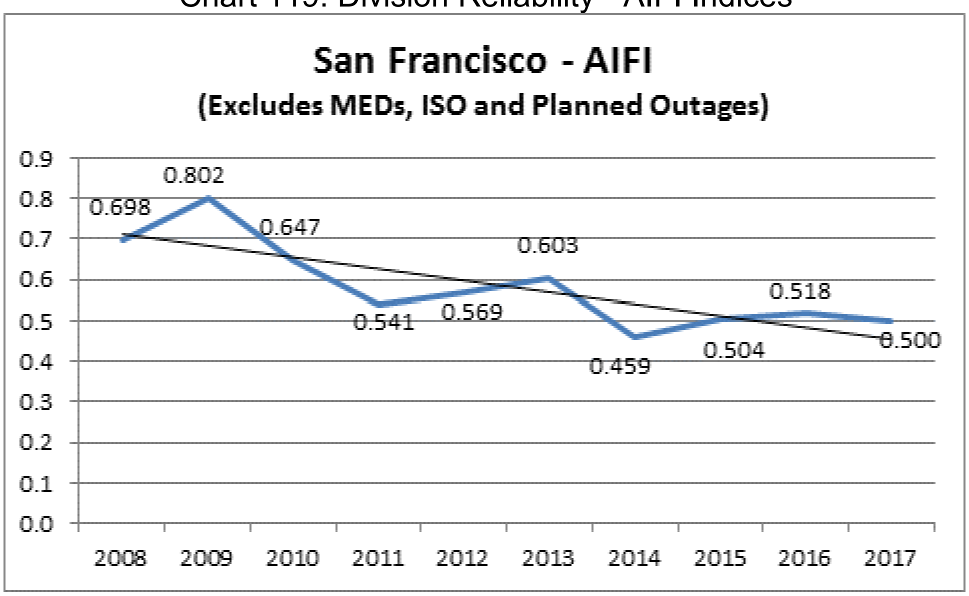


Chart 120: Division Reliability - AIFI Indices

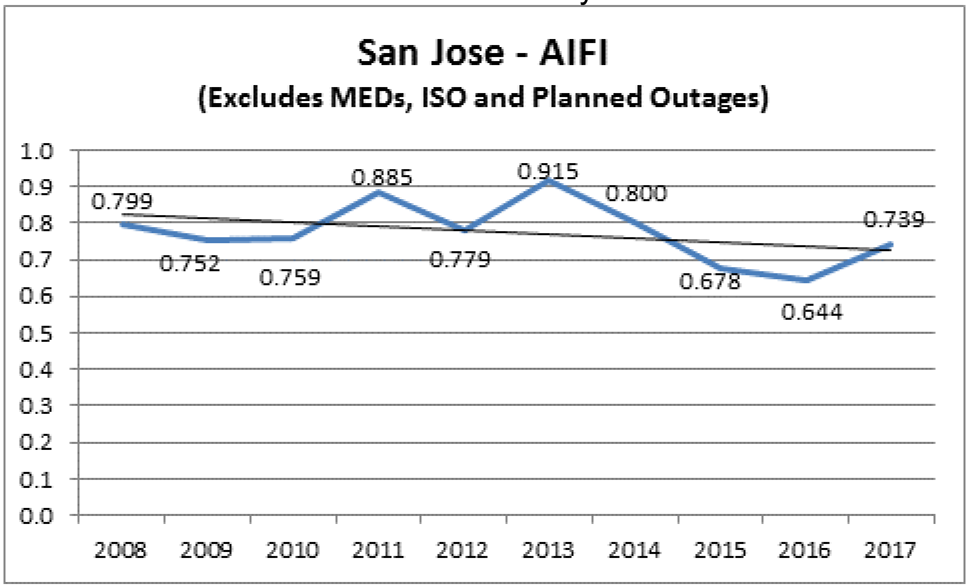


Chart 121: Division Reliability - AIFI Indices

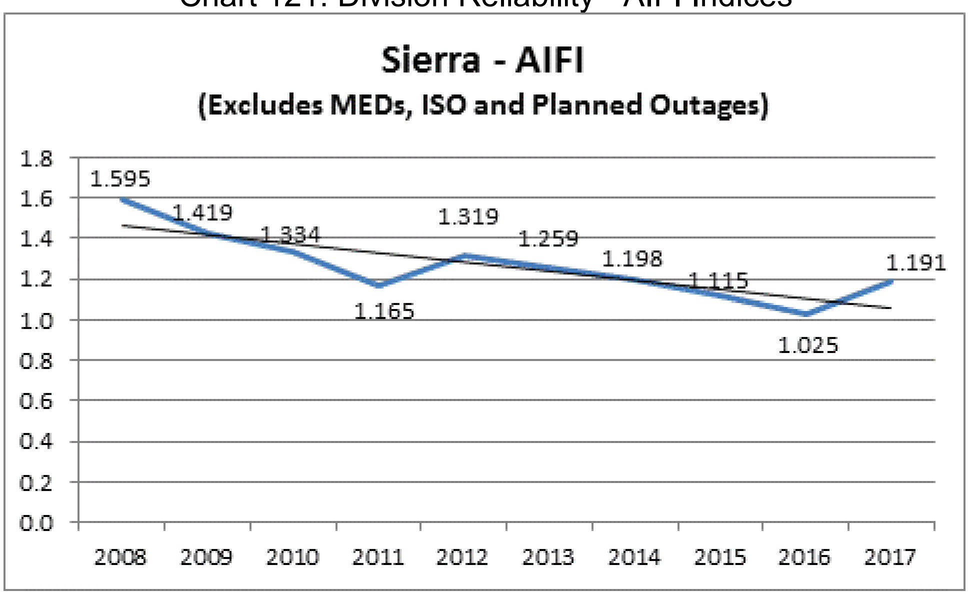


Chart 122: Division Reliability - AIFI Indices

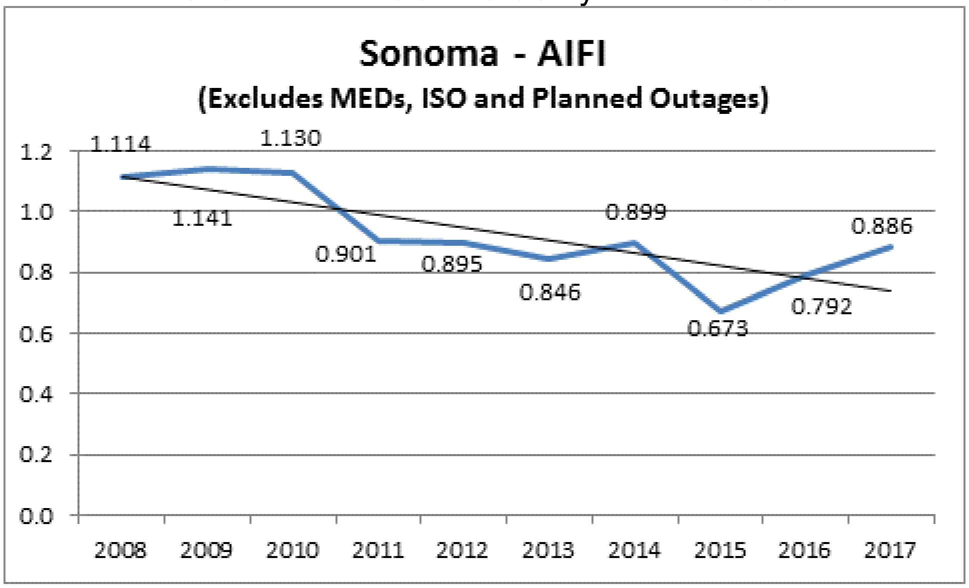


Chart 123: Division Reliability - AIFI Indices

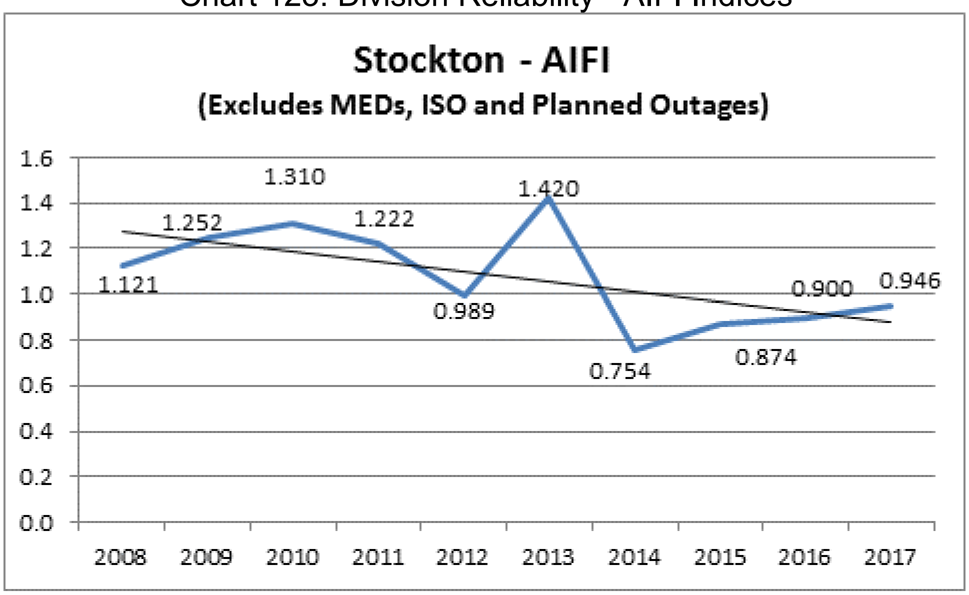
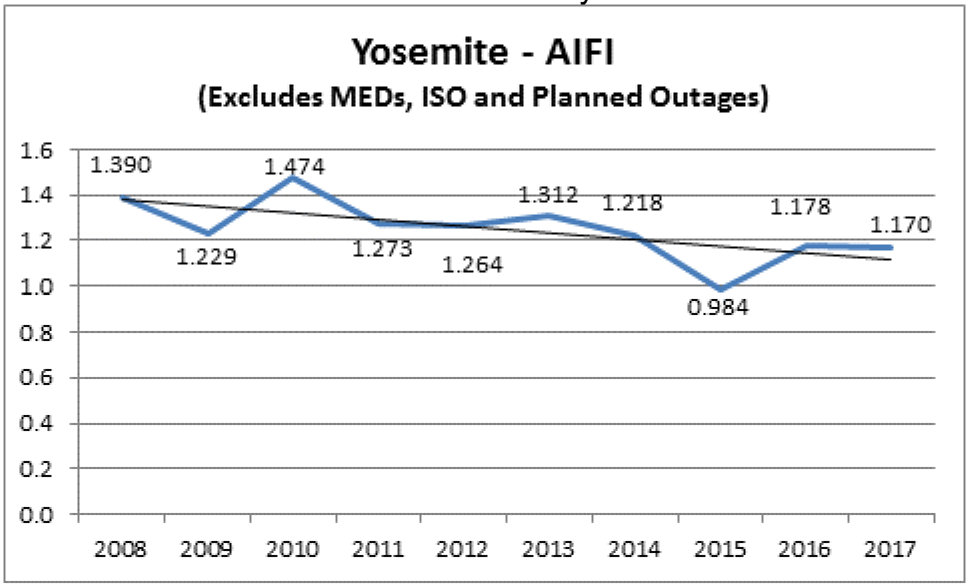


Chart 124: Division Reliability - AIFI Indices



3. MAIFI Performance Results (MED Excluded)

Chart 125: Division Reliability - MAIFI Indices

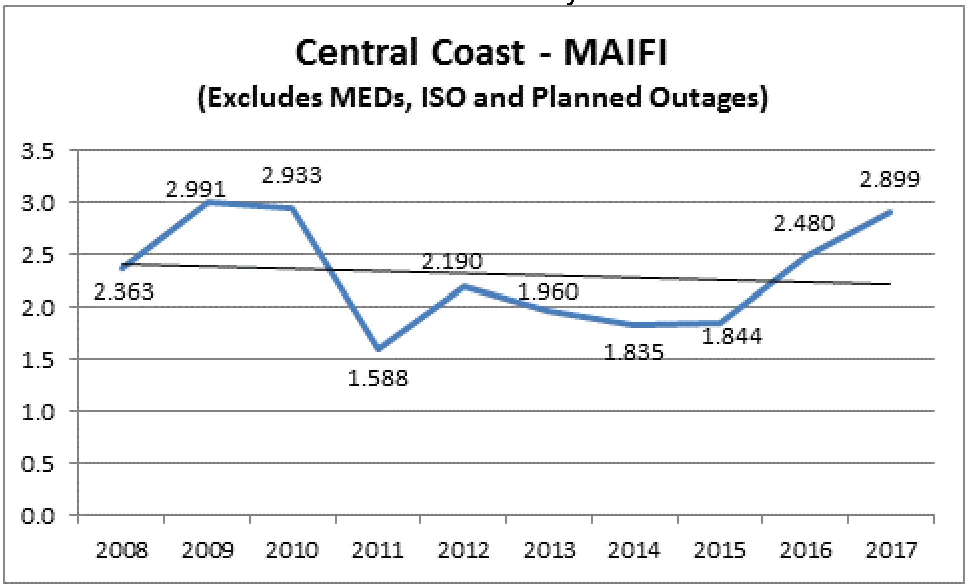


Chart 126: Division Reliability - MAIFI Indices

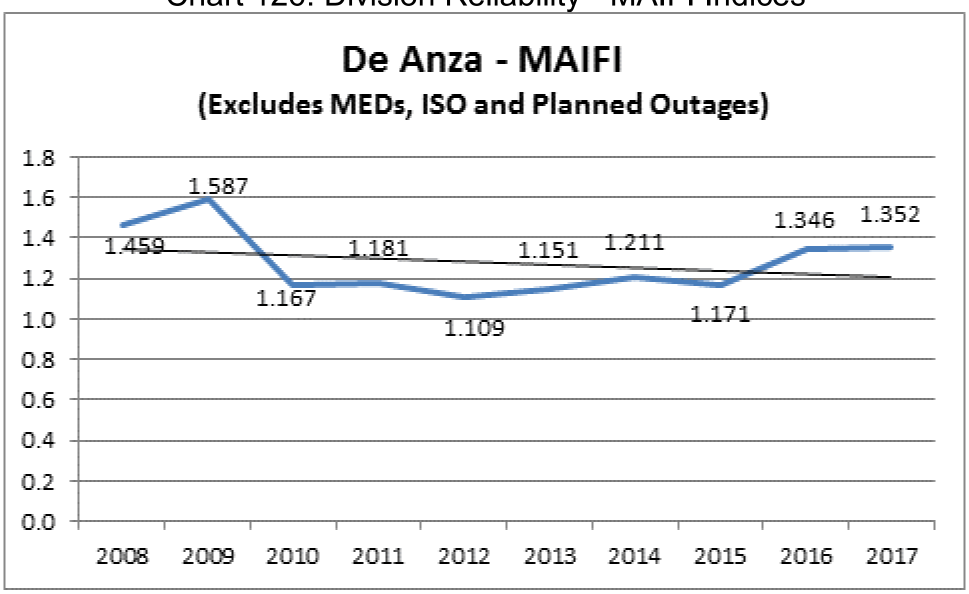


Chart 127: Division Reliability - MAIFI Indices

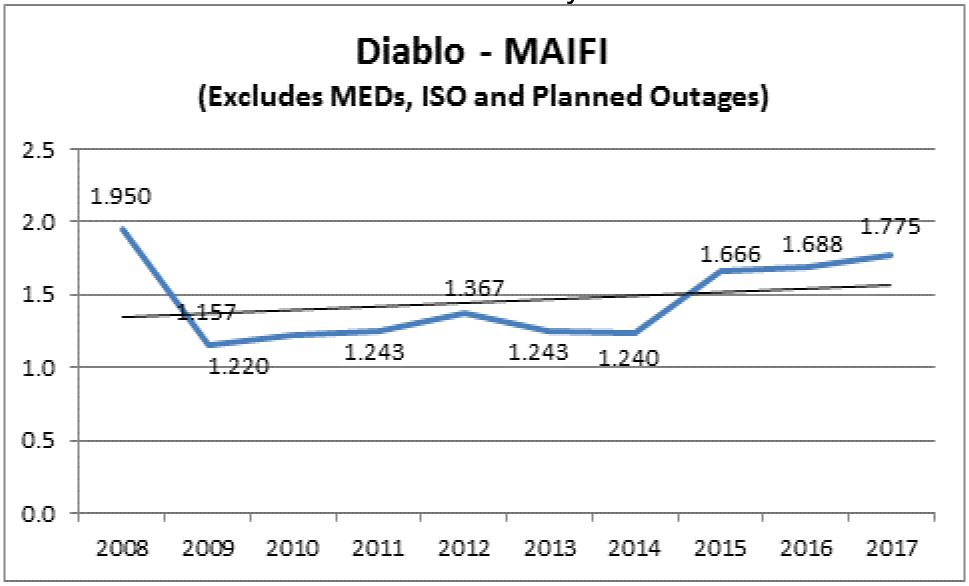


Chart 128: Division Reliability - MAIFI Indices

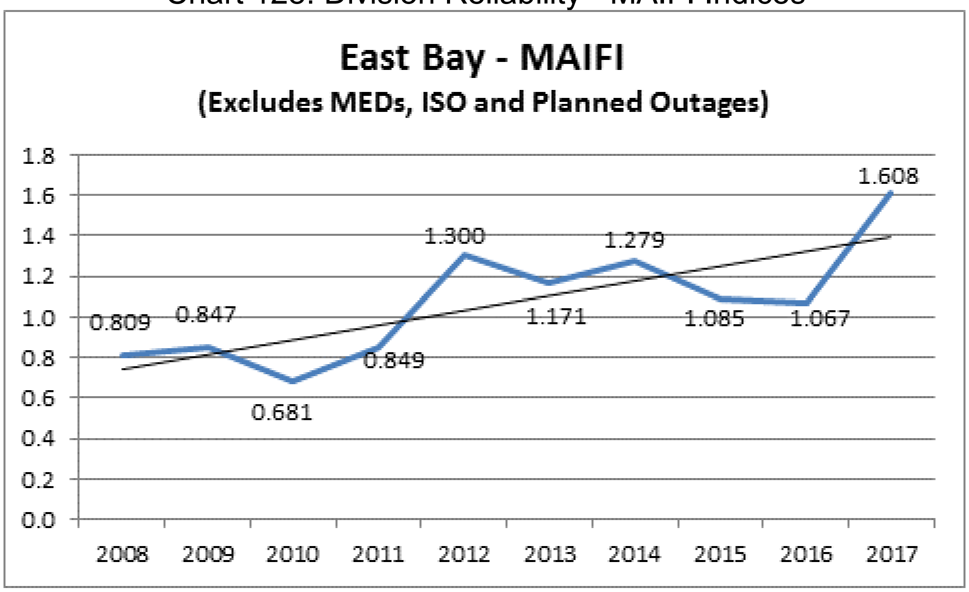


Chart 129: Division Reliability - MAIFI Indices

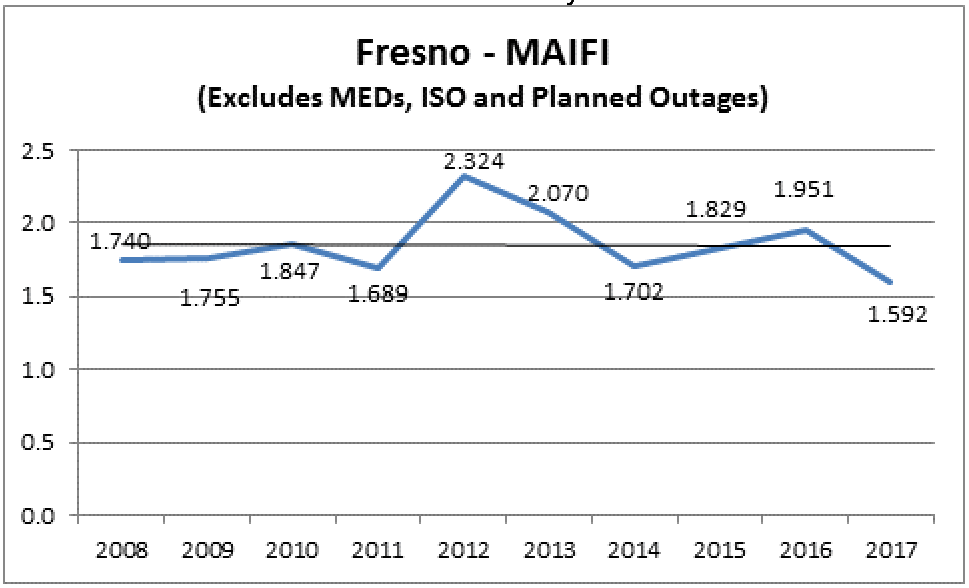


Chart 130: Division Reliability - MAIFI Indices

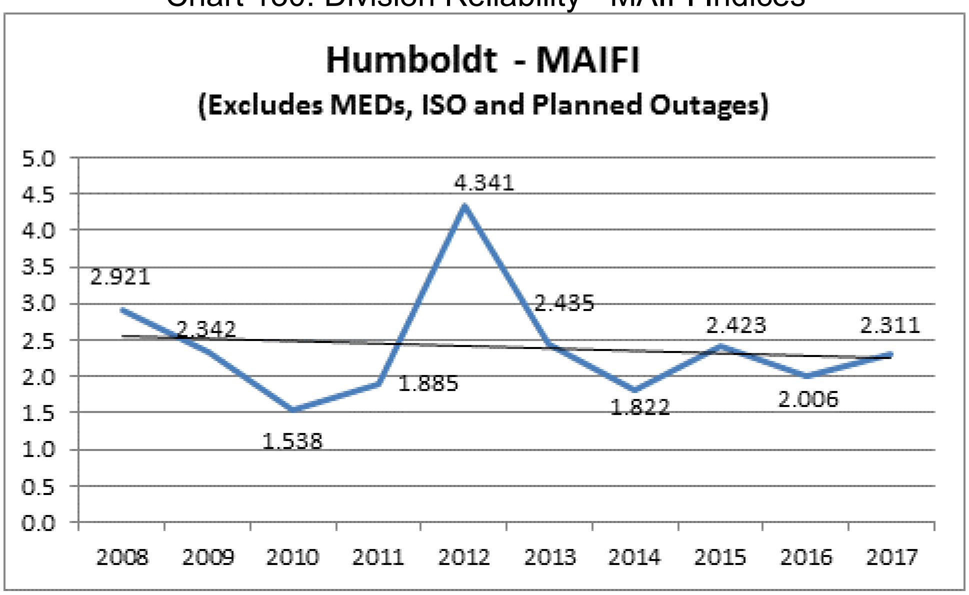


Chart 131: Division Reliability - MAIFI Indices

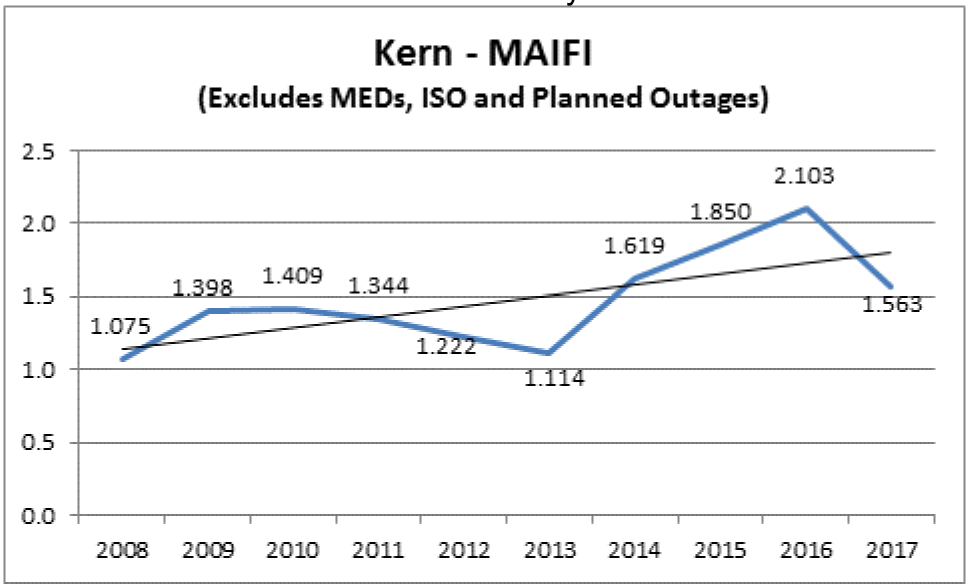


Chart 132: Division Reliability - MAIFI Indices

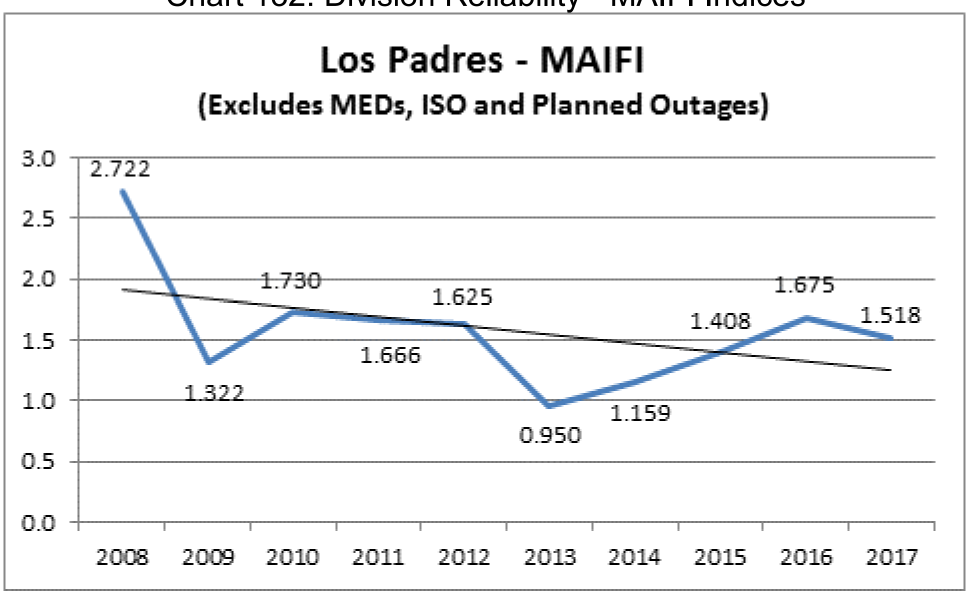


Chart 133: Division Reliability - MAIFI Indices

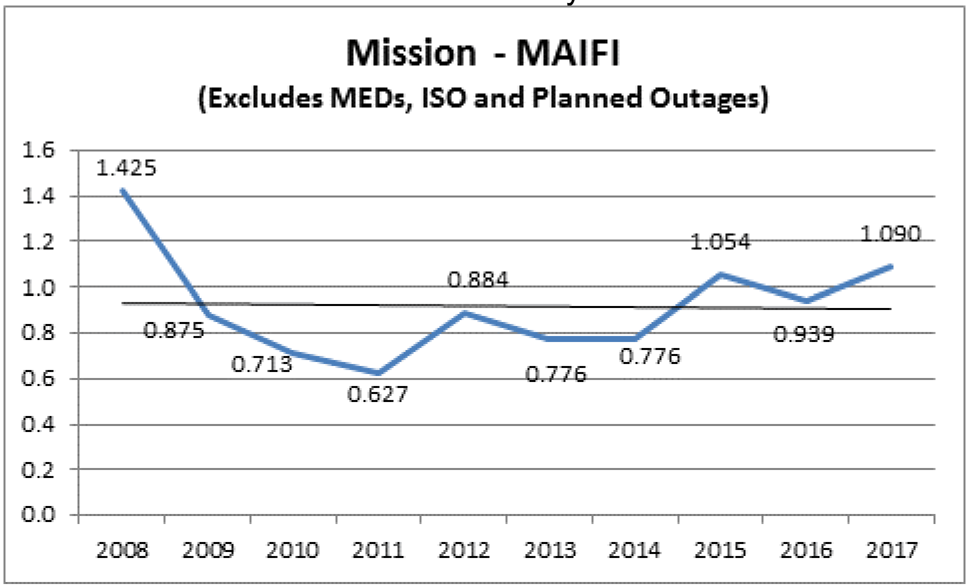


Chart 134: Division Reliability - MAIFI Indices

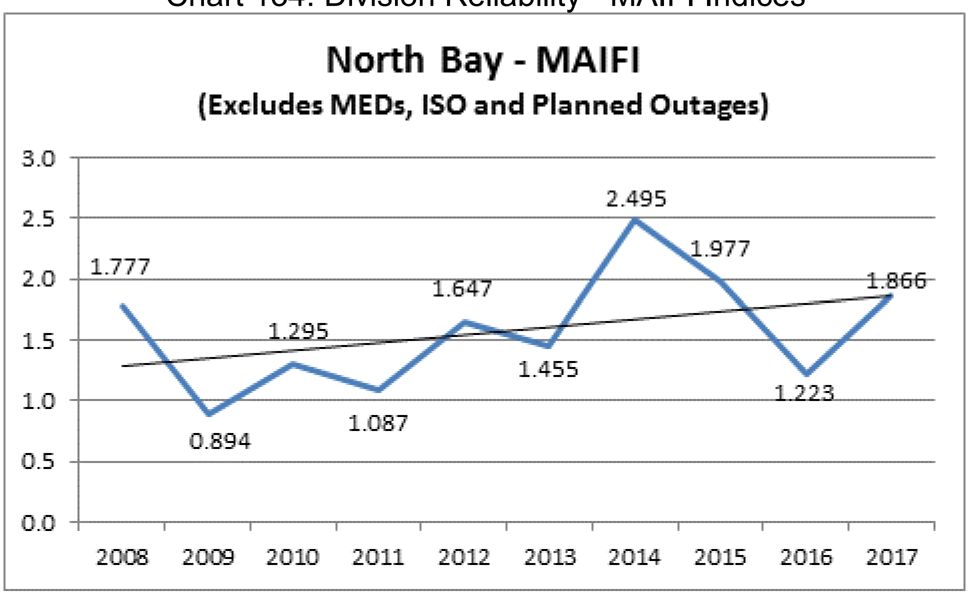


Chart 135: Division Reliability - MAIFI Indices

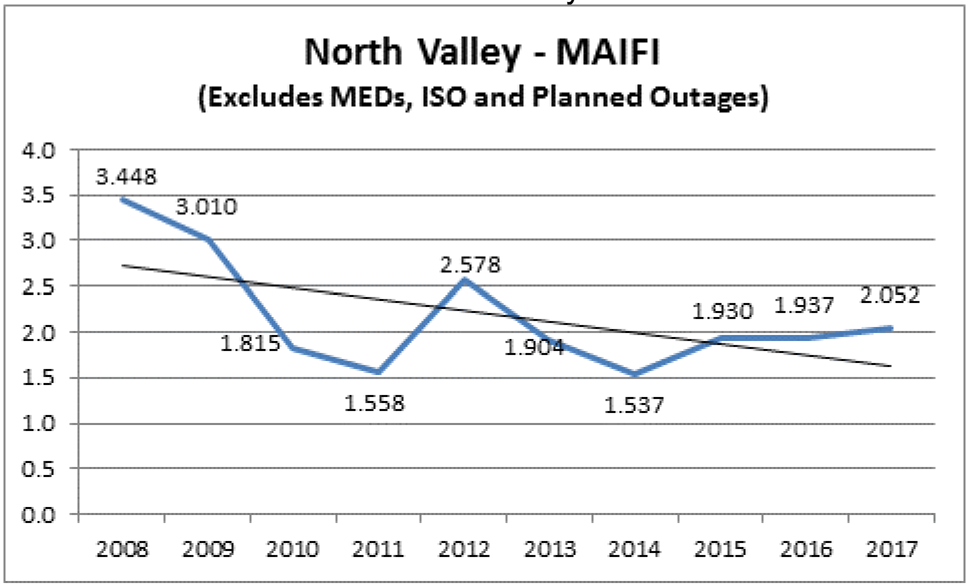


Chart 136: Division Reliability - MAIFI Indices

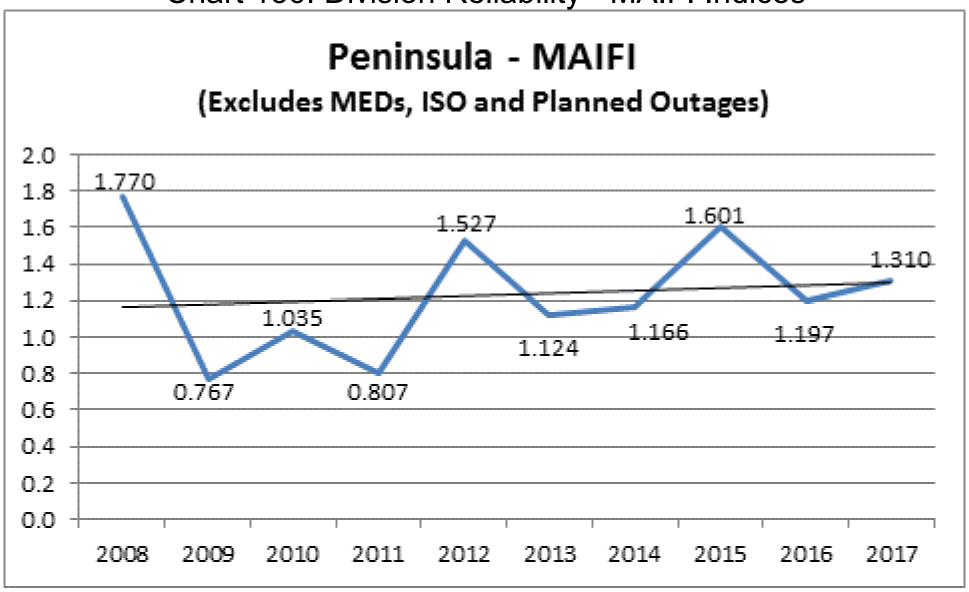


Chart 137: Division Reliability - MAIFI Indices

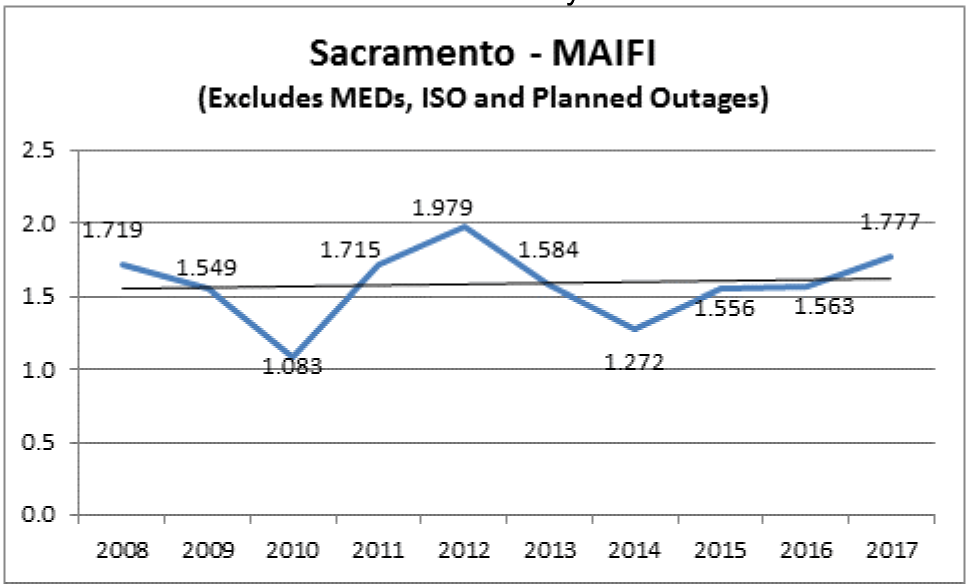


Chart 138: Division Reliability - MAIFI Indices

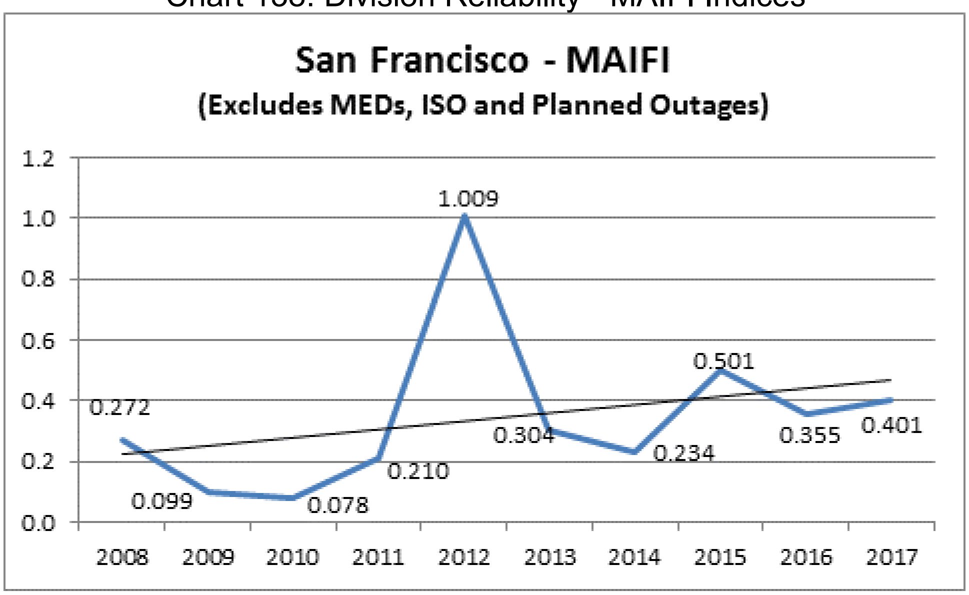


Chart 139: Division Reliability - MAIFI Indices

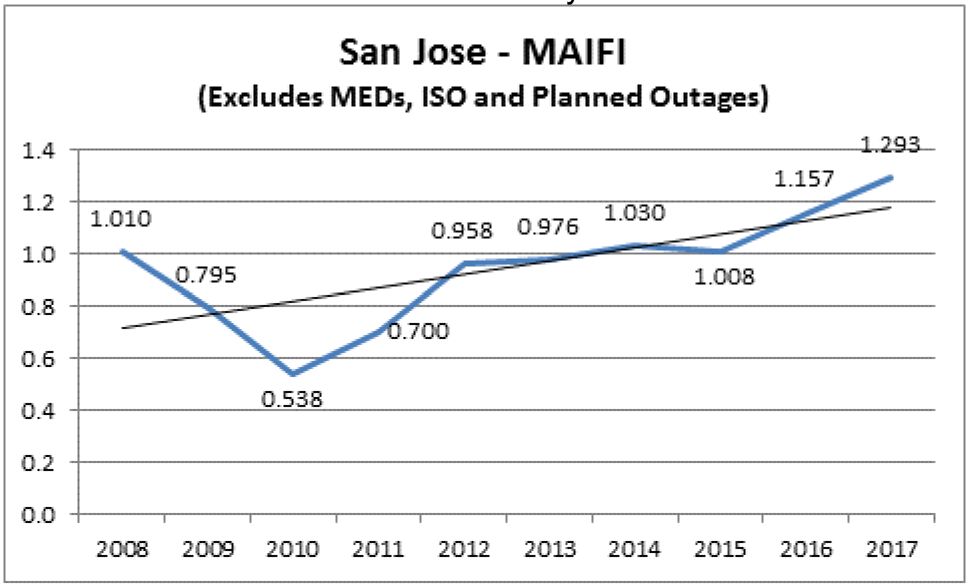


Chart 140: Division Reliability - MAIFI Indices

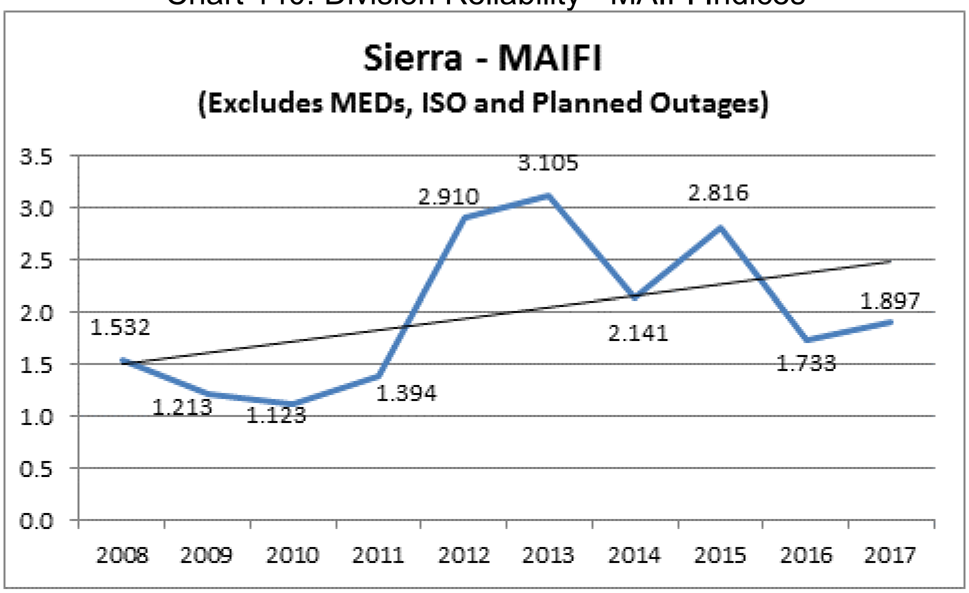


Chart 141: Division Reliability - MAIFI Indices

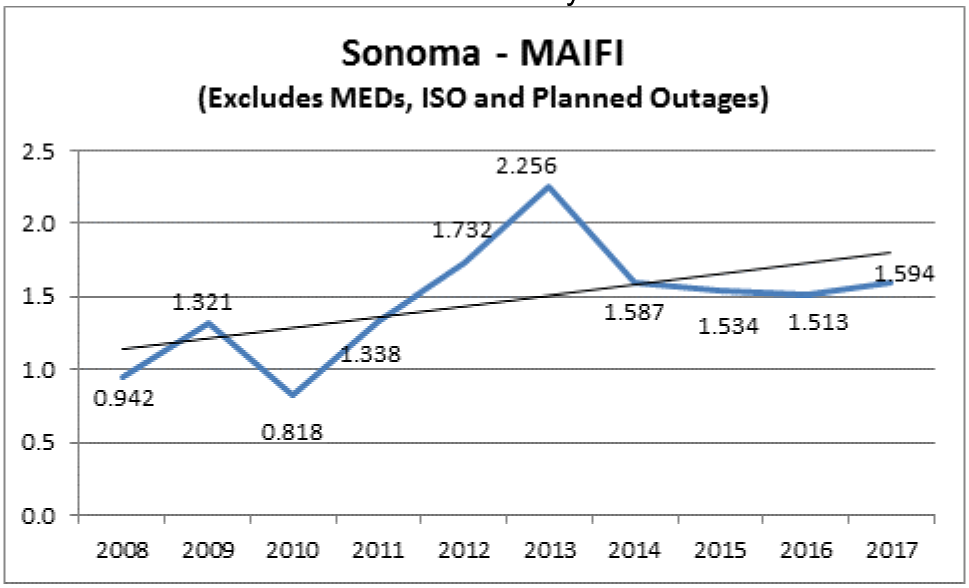


Chart 142: Division Reliability - MAIFI Indices

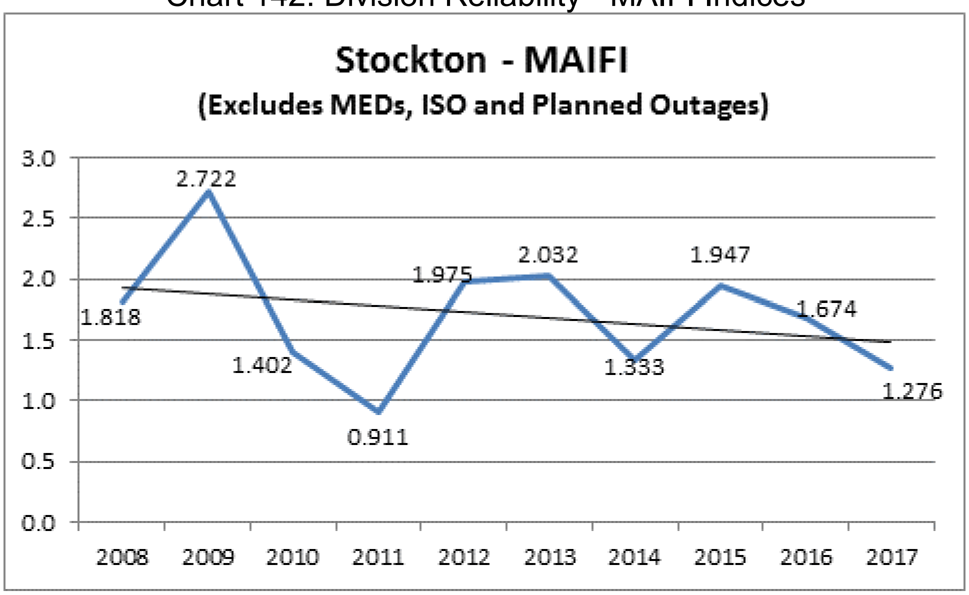
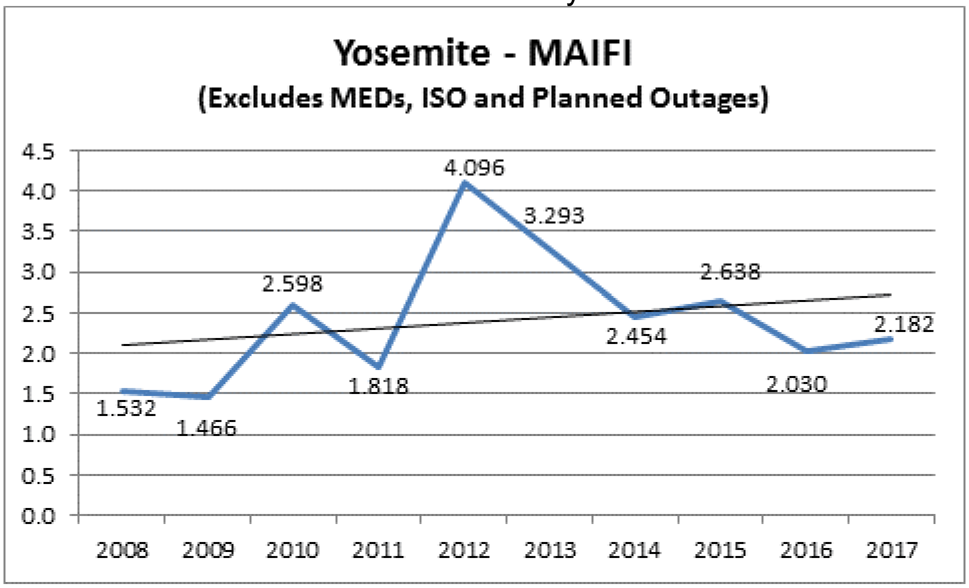


Chart 143: Division Reliability - MAIFI Indices



4. CAIDI Performance Results (MED Excluded)

Chart 144: Division Reliability - CAIDI Indices

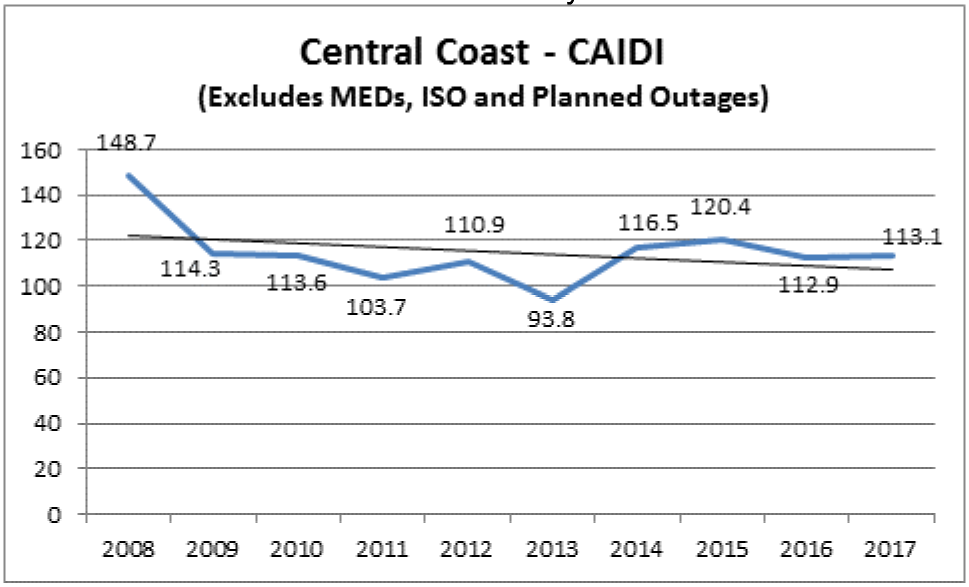


Chart 145: Division Reliability - CAIDI Indices

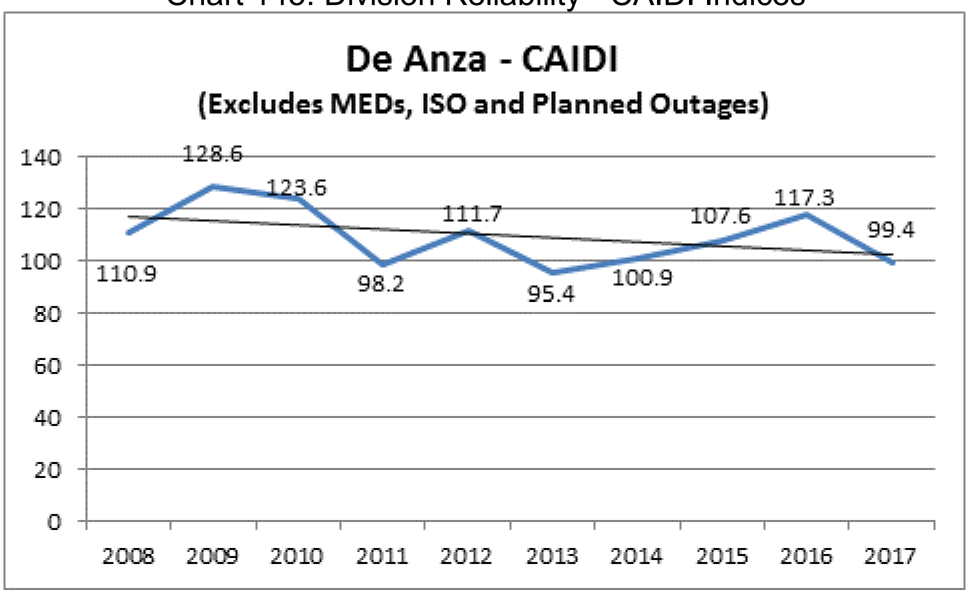


Chart 146: Division Reliability - CAIDI Indices

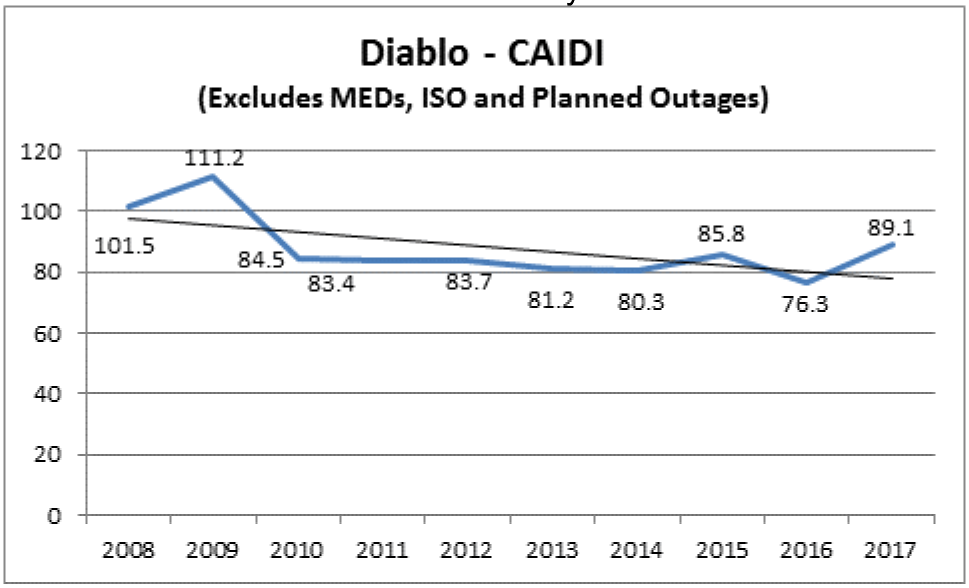


Chart 147: Division Reliability - CAIDI Indices

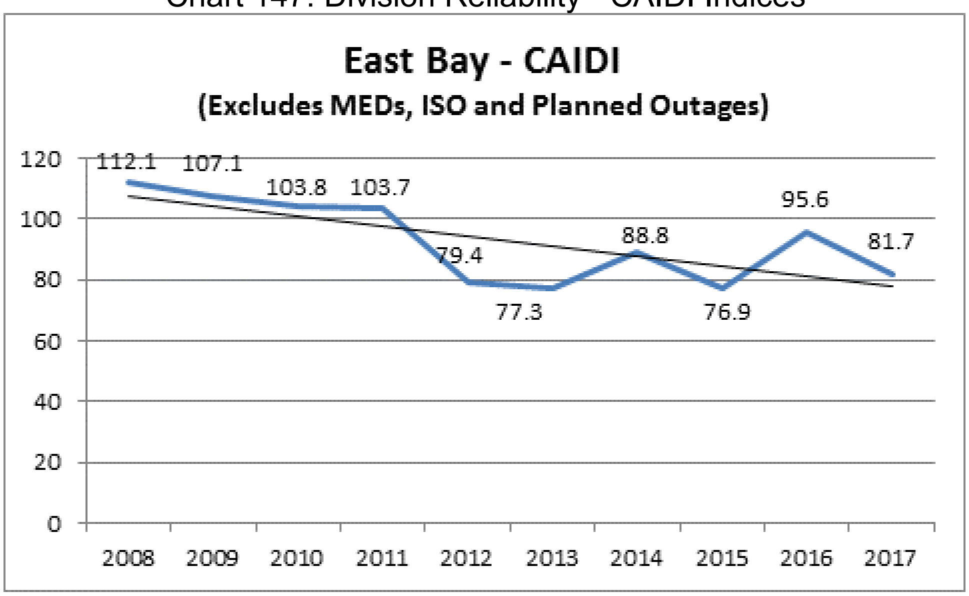


Chart 148: Division Reliability - CAIDI Indices

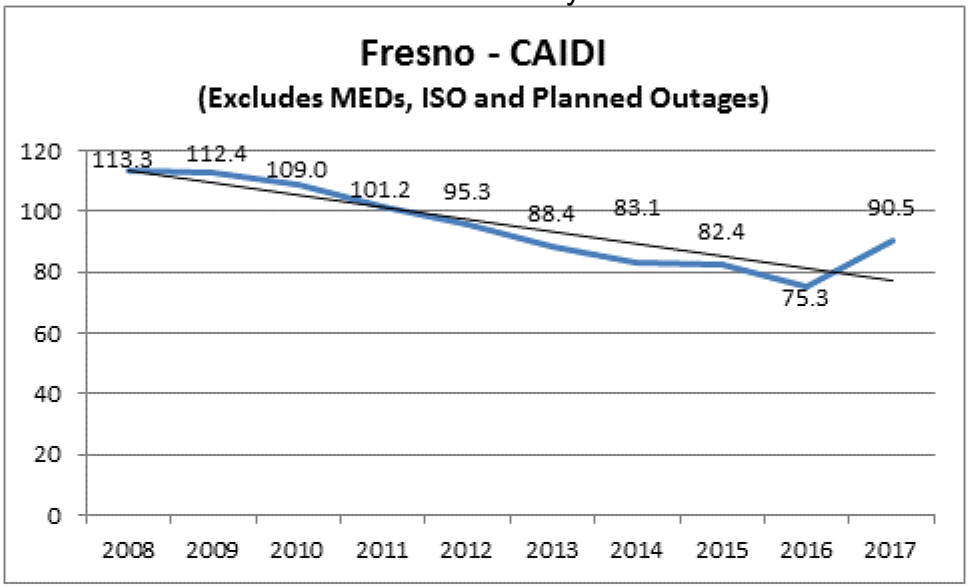


Chart 149: Division Reliability - CAIDI Indices

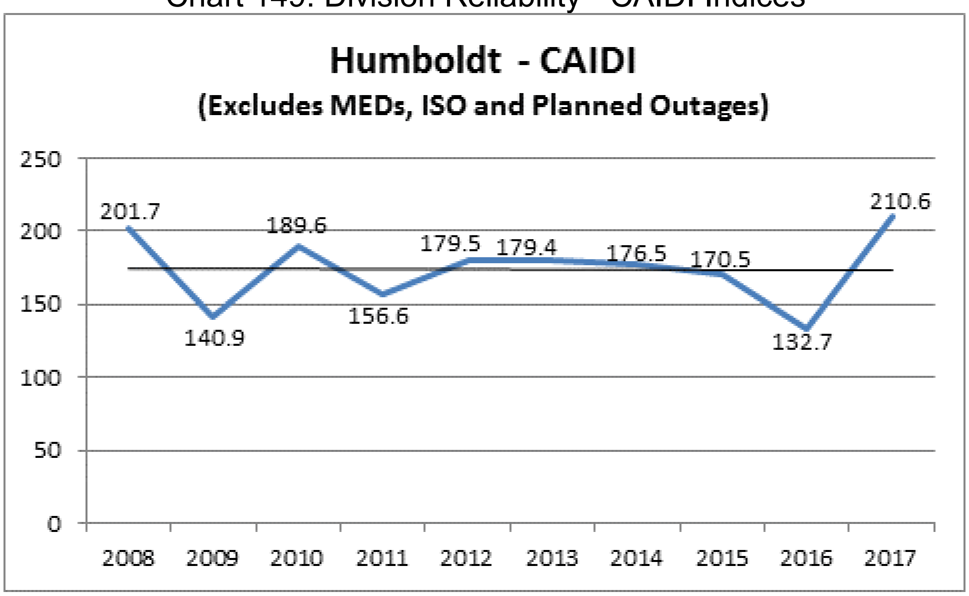


Chart 150: Division Reliability - CAIDI Indices

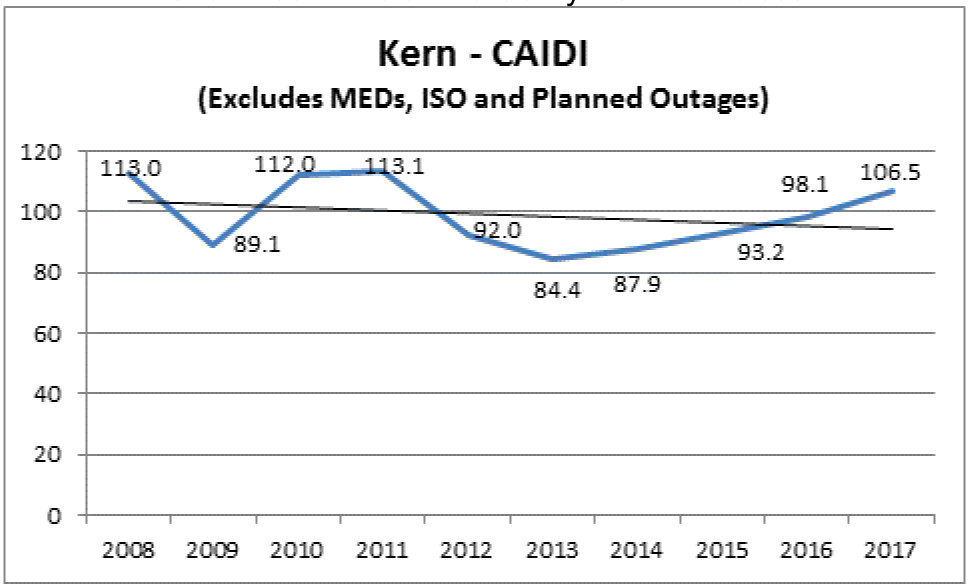


Chart 151: Division Reliability - CAIDI Indices

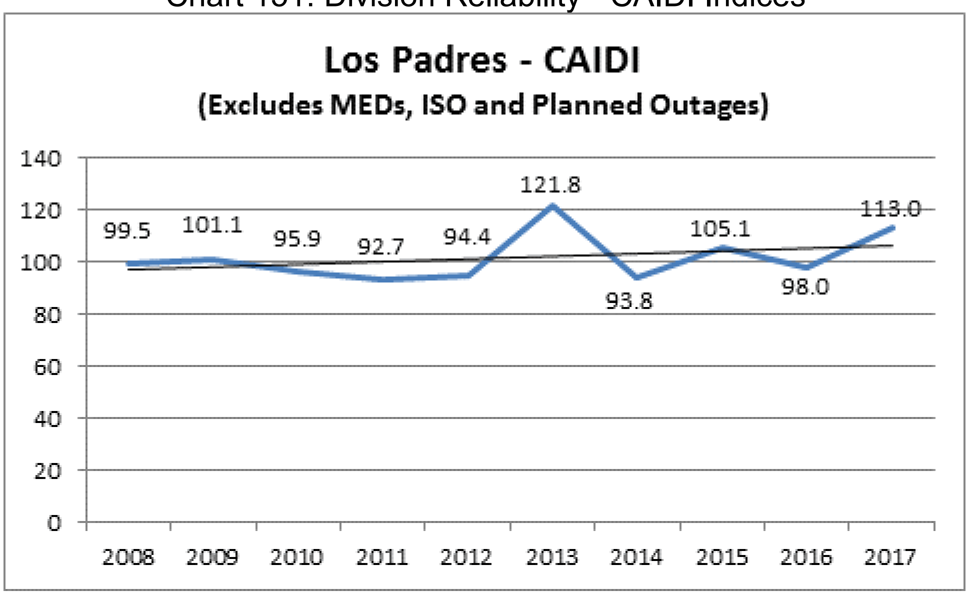


Chart 152: Division Reliability - CAIDI Indices

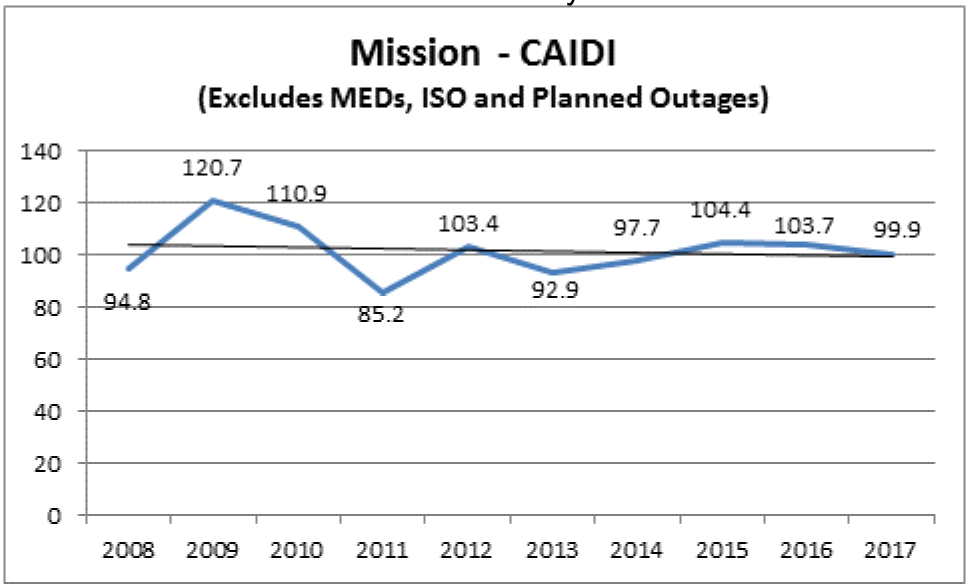


Chart 153: Division Reliability - CAIDI Indices

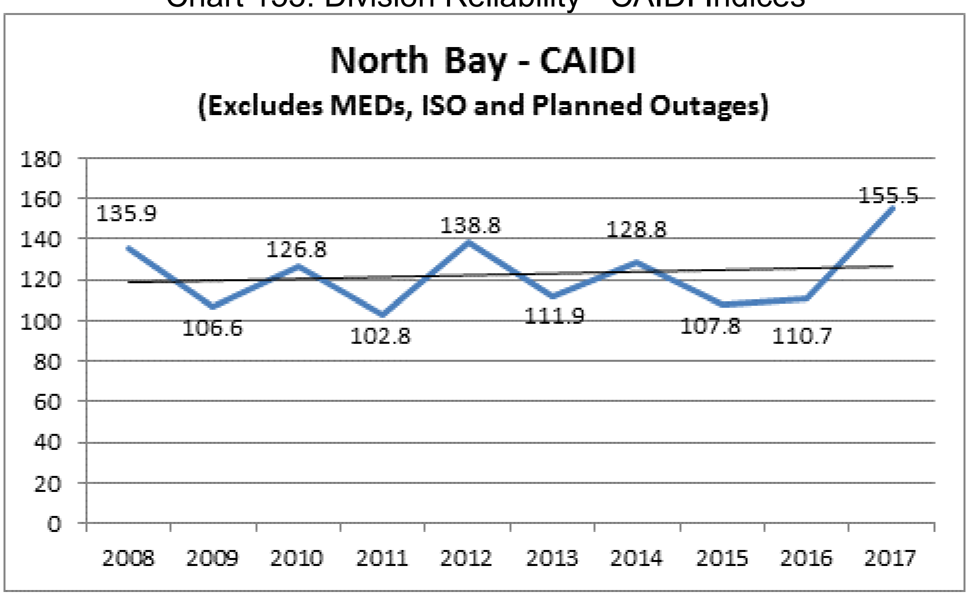


Chart 154: Division Reliability - CAIDI Indices

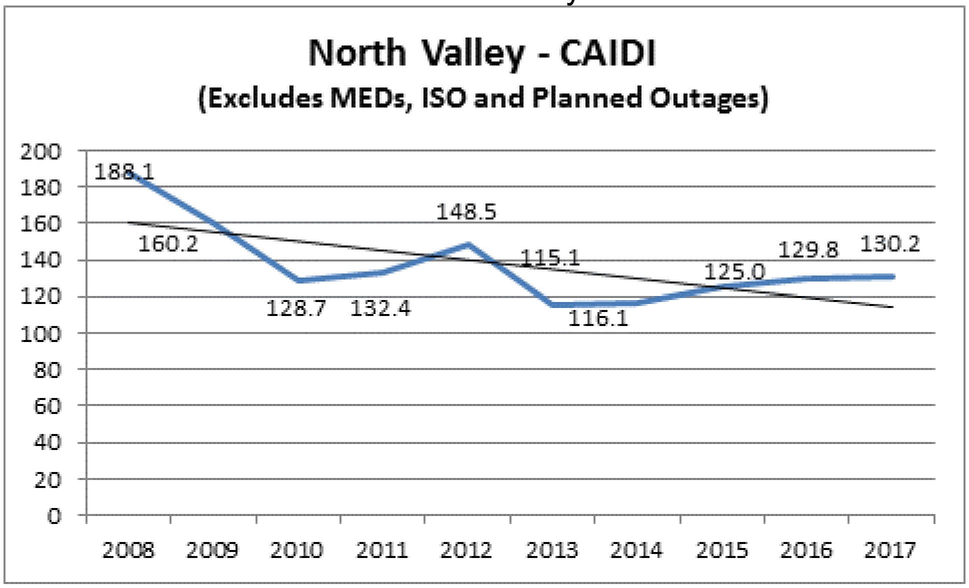


Chart 155: Division Reliability - CAIDI Indices

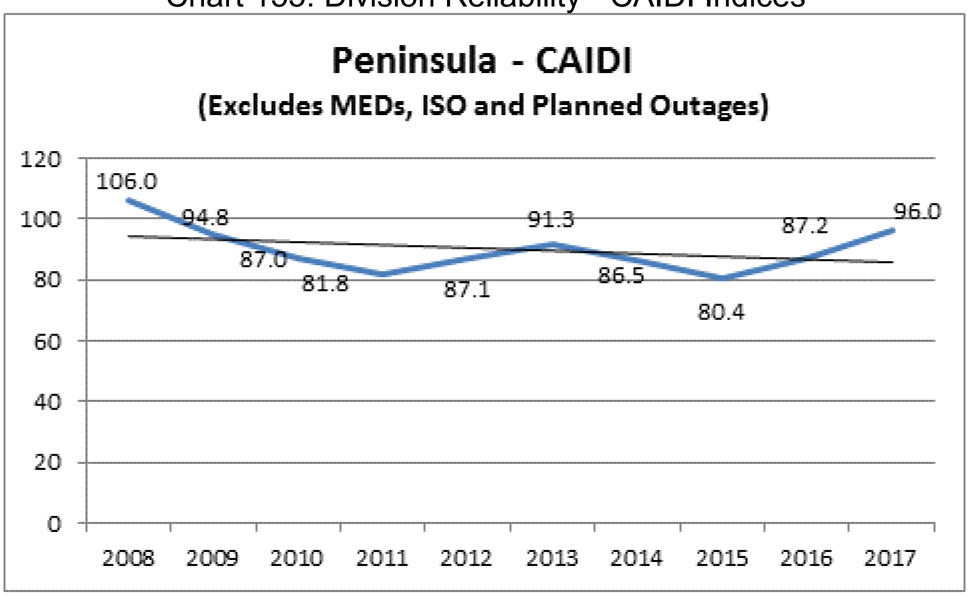


Chart 156: Division Reliability - CAIDI Indices

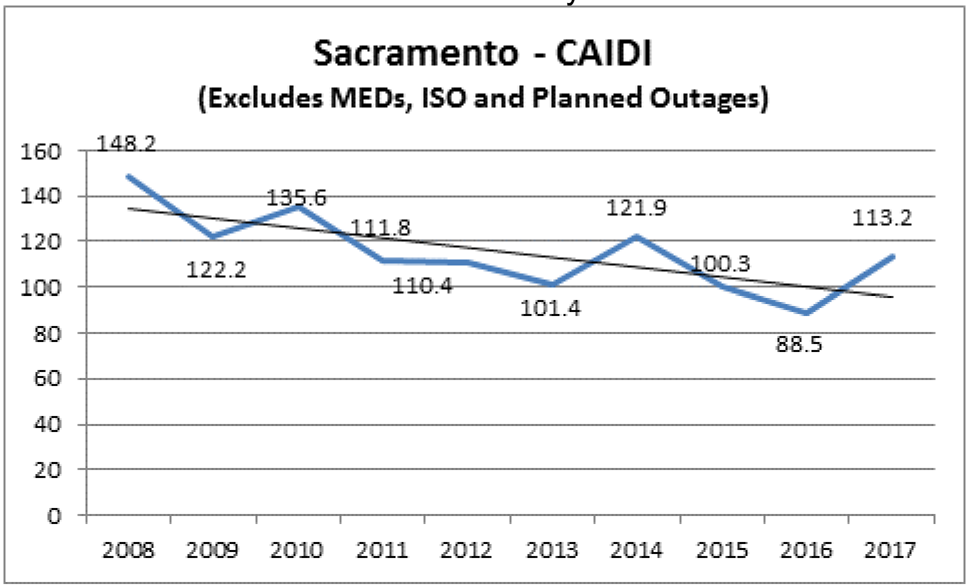


Chart 157: Division Reliability - CAIDI Indices

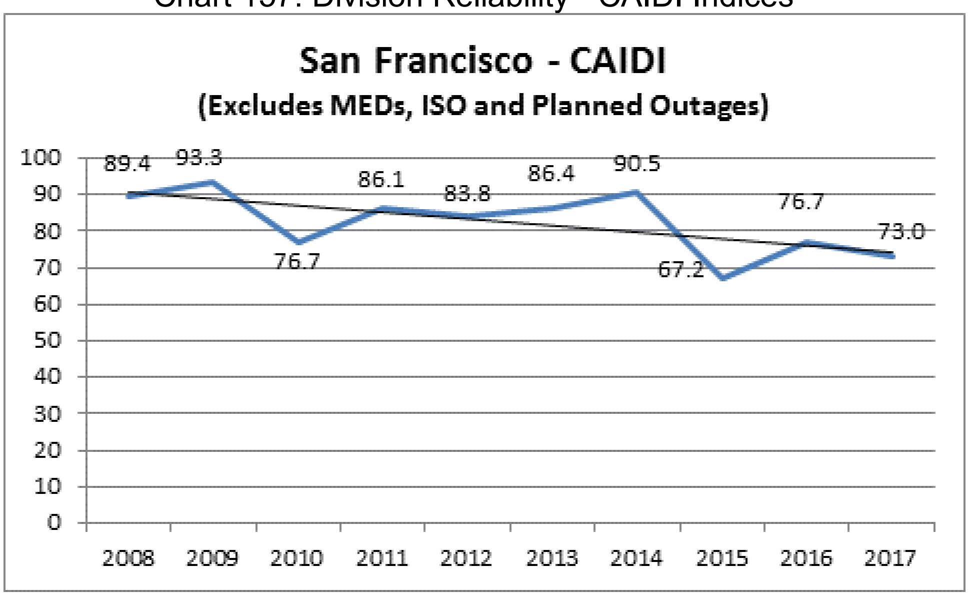


Chart 158: Division Reliability - CAIDI Indices

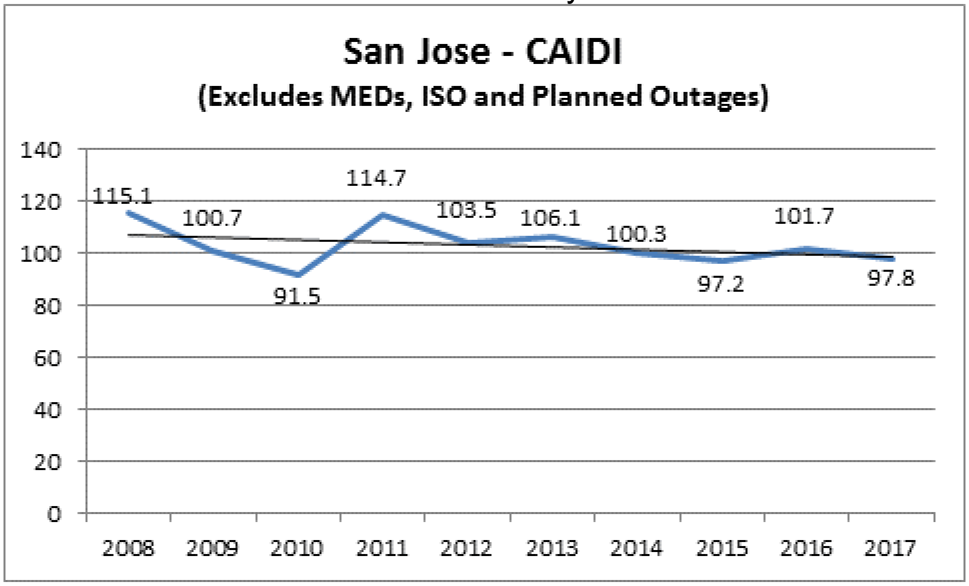


Chart 159: Division Reliability - CAIDI Indices

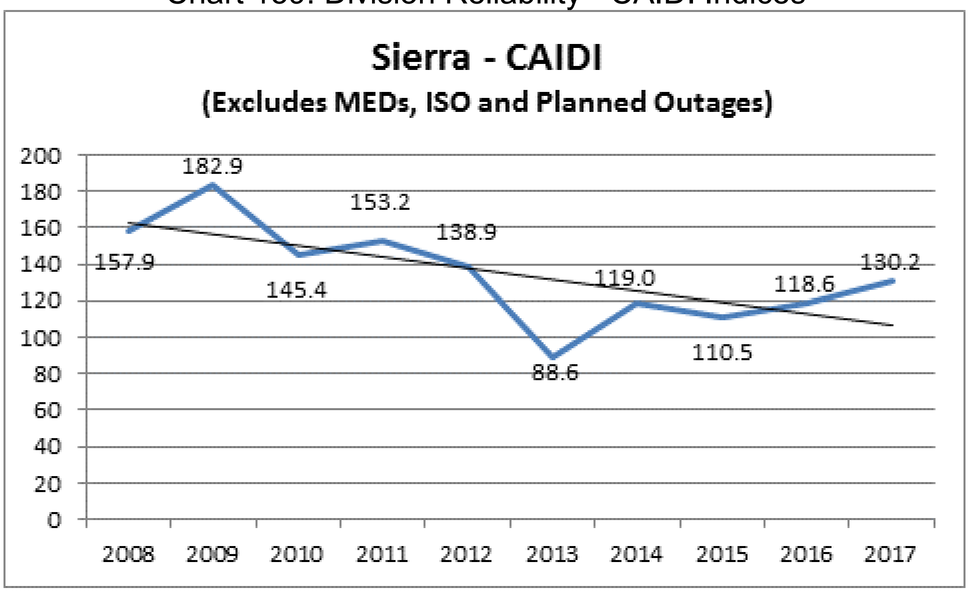


Chart 160: Division Reliability - CAIDI Indices

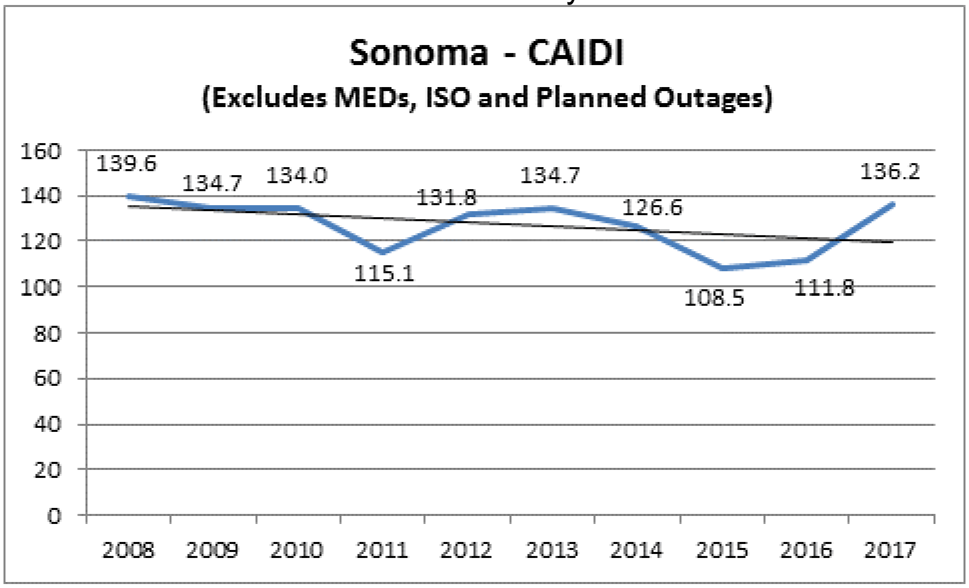


Chart 161: Division Reliability - CAIDI Indices

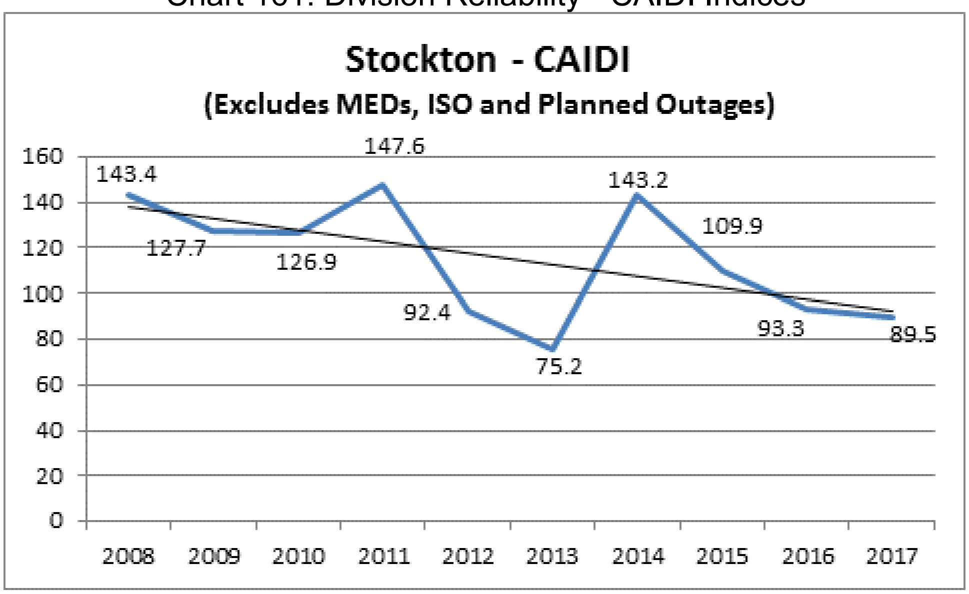
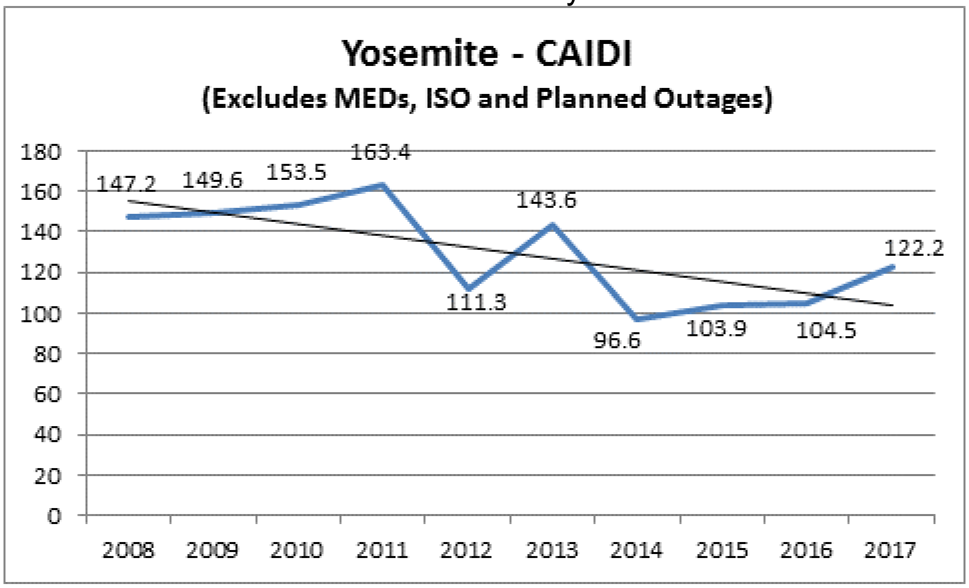


Chart 162: Division Reliability - CAIDI Indices



d. Division and System Reliability Indices Performance Variances (Five-Year Average)

This section contains additional division reliability information, as required by Decision 04-10-034, and Decision 16-01-008, Appendix B, footnote 6. This section explains threshold variations (unplanned outages only) in division and/or system reliability indices relative to the prior five-year averages (excluding major events, as defined per the IEEE 1366 methodology). This section also highlights the large outage events in each division that exceeded the reporting threshold.

Table 7 summarizes the 2017 division indices that meet the reporting requirement thresholds of 10 percent or more for the division, and 5 percent or more at the system level worse than the five year rolling average of reliability performance per D. 04-10-034.[6] An "X" indicates that the 2017 Division and system index exceeded the 10 percent and 5 percent threshold, respectively, and is thus discussed in detail in this section.

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[6] As in prior reports, PG&E does not interpret this reporting requirement as applying to those indices where 2017 reliability was better than the prior five-year average.

Table 7 – 2017 Indices excluding Major Events
(Meeting the Reporting Requirement Thresholds)

	SAIDI	SAIFI	MAIFI	CAIDI
SYSTEM				X
CENTRAL COAST	X		X	
DE ANZA	X	X	X	
DIABLO			X	
EAST BAY			X	
FRESNO				
HUMBOLDT	X			X
KERN				X
LOS PADRES	X		X	X
MISSION			X	
NORTH BAY	X	X		X
NORTH VALLEY				
PENINSULA				X
SACRAMENTO	X	X	X	
SAN FRANCISCO				
SAN JOSE			X	
SIERRA	X			X
SONOMA	X			X
STOCKTON				
YOSEMITE				

Table 8: Division and System Reliability Indices Performance Variances (Excluding MED)

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SYSTEM	2012	111.2	1.031	1.802	107.8
SYSTEM	2013	96.4	0.964	1.529	100.0
SYSTEM	2014	92.8	0.879	1.393	105.6
SYSTEM	2015	80.7	0.787	1.585	102.5
SYSTEM	2016	93.7	0.940	1.495	99.8
5-Year Average	12-16 Avg	95.0	0.920	1.561	103.2
SYSTEM	2017	97.3	0.878	1.577	110.8
	%Difference	2.5%	-4.6%	1.1%	7.4%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
CENTRAL COAST	2012	137.4	1.239	2.190	110.9
CENTRAL COAST	2013	121.0	1.290	1.960	93.8
CENTRAL COAST	2014	127.1	1.090	1.835	116.5
CENTRAL COAST	2015	102.0	0.847	1.844	120.4
CENTRAL COAST	2016	166.1	1.471	2.480	112.9
5-Year Average	12-16 Avg	130.7	1.187	2.062	110.1
CENTRAL COAST	2017	146.3	1.293	2.899	113.1
	%Difference	11.9%	8.9%	40.6%	2.7%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
DE ANZA	2012	74.6	0.668	1.109	111.7
DE ANZA	2013	77.1	0.808	1.151	95.4
DE ANZA	2014	90.0	0.892	1.211	100.9
DE ANZA	2015	51.2	0.476	1.171	107.6
DE ANZA	2016	87.2	0.743	1.346	117.3
5-Year Average	12-16 Avg	76.0	0.717	1.198	106.0
DE ANZA	2017	97.9	0.985	1.352	99.4
	%Difference	28.8%	37.2%	12.9%	-6.2%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
DIABLO	2012	98.9	1.182	1.367	83.7
DIABLO	2013	80.8	0.995	1.243	81.2
DIABLO	2014	70.0	0.872	1.240	80.3
DIABLO	2015	73.8	0.860	1.666	85.8
DIABLO	2016	76.5	1.003	1.688	76.3
5-Year Average	12-16 Avg	80.0	0.982	1.441	81.4
DIABLO	2017	78.0	0.876	1.775	89.1
	%Difference	-2.5%	-10.9%	23.2%	9.4%

Division Reliability Indices
2012-2017
(Excluding MED)

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
EAST BAY	2012	100.7	1.268	1.300	79.4
EAST BAY	2013	63.2	0.818	1.171	77.3
EAST BAY	2014	67.3	0.758	1.279	88.8
EAST BAY	2015	45.0	0.586	1.085	76.9
EAST BAY	2016	101.4	1.060	1.067	95.6
5-Year Average	12-16 Avg	75.5	0.898	1.180	84.1
EAST BAY	2017	73.8	0.903	1.608	81.7
	%Difference	-2.3%	0.6%	36.2%	-2.9%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
FRESNO	2012	99.3	1.042	2.324	95.3
FRESNO	2013	94.2	1.066	2.070	88.4
FRESNO	2014	82.3	0.990	1.702	83.1
FRESNO	2015	70.0	0.849	1.829	82.4
FRESNO	2016	83.4	1.107	1.951	75.3
5-Year Average	12-16 Avg	85.8	1.011	1.975	84.9
FRESNO	2017	72.3	0.799	1.592	90.5
	%Difference	-15.8%	-21.0%	-19.4%	6.6%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
HUMBOLDT	2012	278.1	1.549	4.341	179.5
HUMBOLDT	2013	208.3	1.161	2.435	179.4
HUMBOLDT	2014	212.5	1.204	1.822	176.5
HUMBOLDT	2015	276.3	1.621	2.423	170.5
HUMBOLDT	2016	202.6	1.527	2.006	132.7
5-Year Average	12-16 Avg	235.6	1.412	2.605	166.8
HUMBOLDT	2017	275.1	1.306	2.311	210.6
	%Difference	16.8%	-7.5%	-11.3%	26.3%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
KERN	2012	89.9	0.977	1.222	92.0
KERN	2013	88.3	1.046	1.114	84.4
KERN	2014	83.7	0.952	1.619	87.9
KERN	2015	80.4	0.862	1.850	93.2
KERN	2016	89.2	0.909	2.103	98.1
5-Year Average	12-16 Avg	86.3	0.949	1.582	90.9
KERN	2017	78.1	0.733	1.563	106.5
	%Difference	-9.4%	-22.7%	-1.2%	17.2%

Division Reliability Indices
2012-2017
(Excluding MED)

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
LOS PADRES	2012	97.6	1.034	1.625	94.4
LOS PADRES	2013	89.7	0.736	0.950	121.8
LOS PADRES	2014	95.6	1.019	1.159	93.8
LOS PADRES	2015	72.2	0.687	1.408	105.1
LOS PADRES	2016	112.3	1.146	1.675	98.0
5-Year Average	12-16 Avg	93.5	0.924	1.363	101.1
LOS PADRES	2017	106.7	0.944	1.518	113.0
	%Difference	14.1%	2.1%	11.4%	11.7%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
MISSION	2012	91.2	0.881	0.884	103.4
MISSION	2013	68.3	0.735	0.776	92.9
MISSION	2014	65.1	0.666	0.776	97.7
MISSION	2015	56.7	0.543	1.054	104.4
MISSION	2016	72.7	0.702	0.939	103.7
5-Year Average	12-16 Avg	70.8	0.705	0.886	100.4
MISSION	2017	60.1	0.602	1.090	99.9
	%Difference	-15.0%	-14.6%	23.0%	-0.5%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
NORTH BAY	2012	109.7	0.791	1.647	138.8
NORTH BAY	2013	101.8	0.909	1.455	111.9
NORTH BAY	2014	114.0	0.885	2.495	128.8
NORTH BAY	2015	97.4	0.904	1.977	107.8
NORTH BAY	2016	83.9	0.758	1.223	110.7
5-Year Average	12-16 Avg	101.4	0.849	1.759	119.3
NORTH BAY	2017	148.5	0.955	1.866	155.5
	%Difference	46.5%	12.4%	6.0%	30.3%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
NORTH VALLEY	2012	223.2	1.503	2.578	148.5
NORTH VALLEY	2013	119.3	1.036	1.904	115.1
NORTH VALLEY	2014	111.1	0.957	1.537	116.1
NORTH VALLEY	2015	132.8	1.062	1.930	125.0
NORTH VALLEY	2016	146.4	1.128	1.937	129.8
5-Year Average	12-16 Avg	146.5	1.137	1.977	128.9
NORTH VALLEY	2017	112.3	0.863	2.052	130.2
	%Difference	-23.4%	-24.1%	3.8%	1.0%

Division Reliability Indices
2012-2017
(Excluding MED)

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
PENINSULA	2012	87.0	0.999	1.527	87.1
PENINSULA	2013	70.7	0.774	1.124	91.3
PENINSULA	2014	77.8	0.900	1.166	86.5
PENINSULA	2015	60.5	0.752	1.601	80.4
PENINSULA	2016	78.8	0.905	1.197	87.2
5-Year Average	12-16 Avg	75.0	0.866	1.323	86.6
PENINSULA	2017	61.5	0.640	1.310	96.0
	%Difference	-18.0%	-26.1%	-0.9%	10.9%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SACRAMENTO	2012	131.3	1.190	1.979	110.4
SACRAMENTO	2013	93.4	0.922	1.584	101.4
SACRAMENTO	2014	96.6	0.793	1.272	121.9
SACRAMENTO	2015	80.1	0.799	1.556	100.3
SACRAMENTO	2016	83.6	0.944	1.563	88.5
5-Year Average	12-16 Avg	97.0	0.930	1.591	104.3
SACRAMENTO	2017	121.2	1.070	1.777	113.2
	%Difference	24.9%	15.1%	11.7%	8.5%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SAN FRANCISCO	2012	47.7	0.569	1.009	83.8
SAN FRANCISCO	2013	52.1	0.603	0.304	86.4
SAN FRANCISCO	2014	41.6	0.459	0.234	90.5
SAN FRANCISCO	2015	33.9	0.504	0.501	67.2
SAN FRANCISCO	2016	39.7	0.518	0.355	76.7
5-Year Average	12-16 Avg	43.0	0.531	0.480	81.0
SAN FRANCISCO	2017	36.5	0.500	0.401	73.0
	%Difference	-15.1%	-5.7%	-16.5%	-9.9%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SAN JOSE	2012	80.6	0.779	0.958	103.5
SAN JOSE	2013	97.1	0.915	0.976	106.1
SAN JOSE	2014	80.3	0.800	1.030	100.3
SAN JOSE	2015	65.9	0.678	1.008	97.2
SAN JOSE	2016	65.5	0.644	1.157	101.7
5-Year Average	12-16 Avg	77.9	0.763	1.026	102.1
SAN JOSE	2017	72.3	0.739	1.293	97.8
	%Difference	-7.1%	-3.1%	26.1%	-4.2%

Division Reliability Indices
2012-2017
(Excluding MED)

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SIERRA	2012	183.2	1.319	2.910	138.9
SIERRA	2013	111.5	1.259	3.105	88.6
SIERRA	2014	142.5	1.198	2.141	119.0
SIERRA	2015	123.2	1.115	2.816	110.5
SIERRA	2016	121.6	1.025	1.733	118.6
5-Year Average	12-16 Avg	136.4	1.183	2.541	115.3
SIERRA	2017	155.0	1.191	1.897	130.2
	%Difference	13.7%	0.7%	-25.4%	12.9%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SONOMA	2012	117.9	0.895	1.732	131.8
SONOMA	2013	113.9	0.846	2.256	134.7
SONOMA	2014	113.7	0.899	1.587	126.6
SONOMA	2015	73.0	0.673	1.534	108.5
SONOMA	2016	88.6	0.792	1.513	111.8
5-Year Average	12-16 Avg	101.4	0.821	1.724	123.5
SONOMA	2017	120.7	0.886	1.594	136.2
	%Difference	19.0%	7.9%	-7.6%	10.2%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
STOCKTON	2012	91.4	0.989	1.975	92.4
STOCKTON	2013	106.9	1.420	2.032	75.2
STOCKTON	2014	108.0	0.754	1.333	143.2
STOCKTON	2015	96.1	0.874	1.947	109.9
STOCKTON	2016	84.0	0.900	1.674	93.3
5-Year Average	12-16 Avg	97.3	0.988	1.792	98.5
STOCKTON	2017	84.6	0.946	1.276	89.5
	%Difference	-13.0%	-4.2%	-28.8%	-9.1%
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
YOSEMITE	2012	140.8	1.264	4.096	111.3
YOSEMITE	2013	188.4	1.312	3.293	143.6
YOSEMITE	2014	117.6	1.218	2.454	96.6
YOSEMITE	2015	102.3	0.984	2.638	103.9
YOSEMITE	2016	123.2	1.178	2.030	104.5
5-Year Average	12-16 Avg	134.5	1.191	2.902	112.9
YOSEMITE	2017	143.0	1.170	2.182	122.2
	%Difference	6.4%	-1.8%	-24.8%	8.3%

i. System and Division Performance Assessment

1. Central Coast Division Performance Assessment

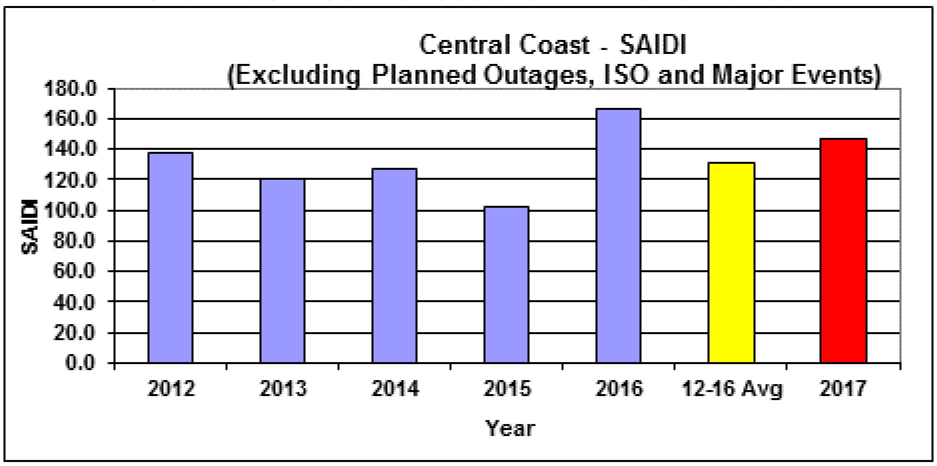
Table 9: Central Coast Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
CENTRAL COAST	2012	137.4	1.239	2.190	110.9
CENTRAL COAST	2013	121.0	1.290	1.960	93.8
CENTRAL COAST	2014	127.1	1.090	1.835	116.5
CENTRAL COAST	2015	102.0	0.847	1.844	120.4
CENTRAL COAST	2016	166.1	1.471	2.480	112.9
5-Year Average	12-16 Avg	130.7	1.187	2.062	110.1
CENTRAL COAST	2017	146.3	1.293	2.899	113.1
	%Difference	11.9%	8.9%	40.6%	2.7%

Central Coast SAIDI Performance

Central Coast's 2017 SAIDI performance of 146.3 was 15.6 customer-minutes (or 11.9%) higher than the previous 5-year average of 130.7 as shown in the table above and illustrated in the figure below.

Chart 163 – Central Coast SAIDI Performance



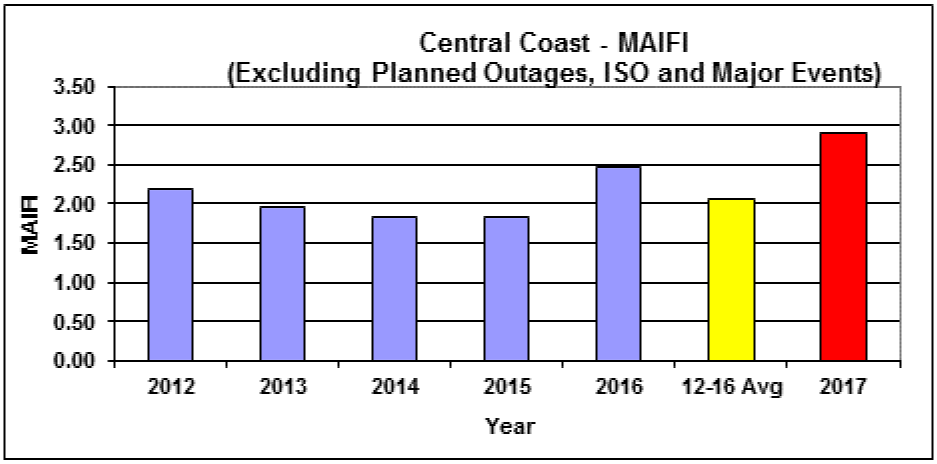
The higher than average 2017 Central Coast SAIDI was attributed to the following:

1. On July 16th, an outage on the San Miguel 1106 circuit due to a broken power pole contributed 5.4 customer-minutes to the division's SAIDI.
2. On August 14th, a broken cross-arm on the 60 kV transmission line caused outages to the Big Basin, Burns and Point Moretti substations that contributed 6.2 customer-minutes to the division's SAIDI.

Central Coast MAIFI Performance

Central Coast's 2017 MAIFI performance of 2.899 was 0.837 customer-interruptions (or 40.6%) higher than the previous 5-year average of 2.062 as shown in the table above and illustrated in the figure below.

Chart 164 – Central Coast MAIFI Performance



The higher than average 2017 Central Coast MAIFI was attributed to the following:

1. The February 8th and 10th storm brought heavy rain throughout the system and contributed 0.159 customer-interruptions to the division's MAIFI.
2. March 30th and 31st brought strong winds across the system and contributed 0.212 customer-interruptions to the division's MAIFI.
3. On April 10th, a momentary outage on the Moss Landing - Del Monte #1 and #2 115kV line associated with a relay coordination issue contributed 0.170 customer-interruptions to the division's MAIFI.
4. On November 11th, the following momentary outages occurred at Green Valley Substation:
    a. Green Valley Substation of unknown cause.
    b. Green Valley 2103 due to a switching error.
    c. Green Valley 2104 of unknown cause.

   These three outages contributed 0.101 customer-interruptions to the division's MAIFI.
5. On April 13th there were nine momentary outage events on various circuits of unknown cause and two due to tree bark on the line. These outages contributed 0.059 customer-interruptions to the division's MAIFI.
6. On April 18th there were four momentary outages on the Camp Evers 2106

circuit due to trees. These outages contributed 0.071 customer-interruptions to the division's MAIFI.

2. De Anza Division Performance Assessment

De Anza Division Performance

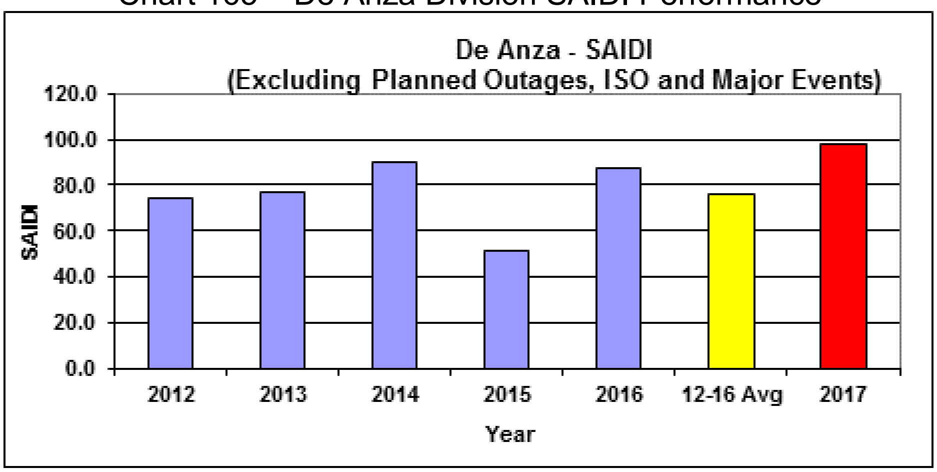
Table 10: De Anza Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
DE ANZA	2012	74.6	0.668	1.109	111.7
DE ANZA	2013	77.1	0.808	1.151	95.4
DE ANZA	2014	90.0	0.892	1.211	100.9
DE ANZA	2015	51.2	0.476	1.171	107.6
DE ANZA	2016	87.2	0.743	1.346	117.3
5-Year Average	12-16 Avg	76.0	0.717	1.198	106.0
DE ANZA	2017	97.9	0.985	1.352	99.4
	%Difference	28.8%	37.2%	12.9%	-6.2%

De Anza Division SAIDI Performance

De Anza Division's 2017 SAIDI performance of 97.9 minutes was 21.9 customer-minutes (or 28.8%) higher than the previous 5-year average of 76.0 as shown in the table above and illustrated in the figure below.

Chart 165 – De Anza Division SAIDI Performance



The higher than average 2017 De Anza SAIDI was attributed to the following:

1. On February 1st, the division experienced an outage on the El Patio 1108 circuit due to a tree falling into the line that contributed 2.9 customer-minutes to the division's SAIDI.
2. On March 21st, a broken fuse holder on the Loyola 403 circuit and a tree falling into the Camp Evers 2103 circuit contributed 3.6 customer-minutes to the division's SAIDI.
3. On April 3rd, a failed underground cable on the Wolfe 1104 circuit contributed

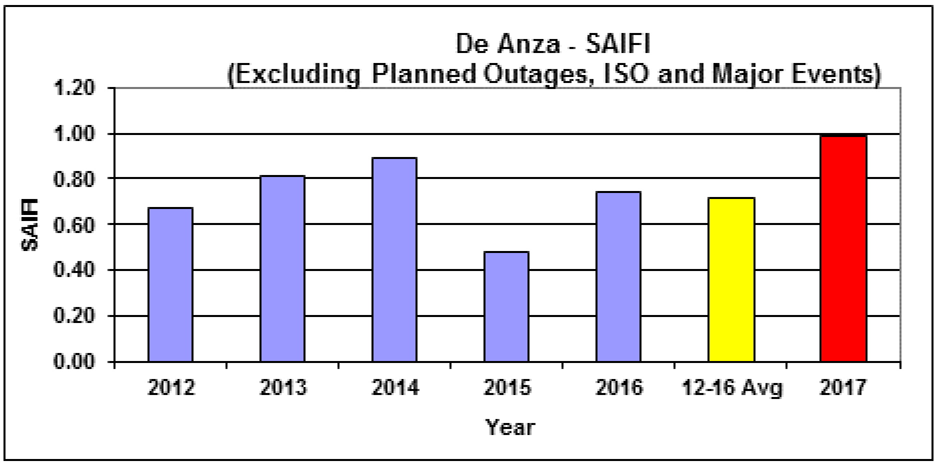
3.2 customer-minutes to the division's SAIDI.

4. On June 19th, a failed underground splice on the El Patio 1107 circuit contributed 2.2 customer-minutes to the division's SAIDI.
5. On October 15th, a squirrel caused a blown riser pothead on the Britton 1106 circuit contributing 3.5 customer-minutes to the division's SAIDI.
6. On November 22nd, a car pole incident on the Saratoga 1114 circuit contributed 3.8 customer-minutes to the division's SAIDI.

De Anza Division SAIFI Performance

De Anza Division's 2017 SAIFI performance of 0.985 was 0.267 customer-interruptions (or 37.2%) higher than the previous 5-year average of 0.717 as shown in the table above and illustrated in the figure below.

Chart 166 – De Anza Division SAIFI Performance



The higher than average 2017 De Anza SAIFI was attributed to the following:

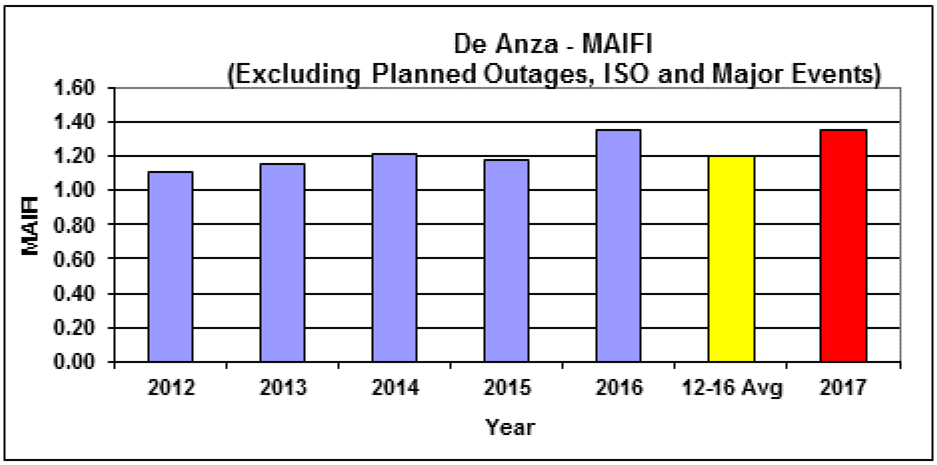
1. On February 15th, a broken jumper on the Lawrence 1112 circuit contributed 0.019 customer-interruptions to the division's SAIFI.
2. On March 11th, a metallic balloon on the El Patio 1107 circuit contributed 0.038 customer-interruptions to the division's SAIFI.
3. On April 3rd, a failed underground cable on the Wolfe 1104 circuit contributed 0.033 customer-interruptions to the division's SAIFI.
4. On June 19th, a failed underground splice on the El Patio 1107 circuit contributed 0.027 customer-interruptions to the division's SAIFI.
5. On September 22nd, a broken cutout (caused by a squirrel) on the Stelling 1110 circuit contributed 0.017 customer-interruptions to the division's SAIFI.
6. On October 15th, a squirrel caused a blown riser pothead on the Britton 1106 circuit contributing 0.037 customer-interruptions to the division's SAIFI.

7. On November 22nd, a car pole incident on the Saratoga 1114 circuit contributed 0.033 customer-interruptions to the division's SAIFI.
8. On November 24th, a downed overhead conductor on the El Patio 1107 circuit contributed 0.027 customer-interruptions to the division's SAIFI.

De Anza Division MAIFI Performance

De Anza Division's 2017 MAIFI performance of 1.352 was 0.154 customer-interruptions (or 12.9%) higher than the previous 5-year average of 1.198 as shown in the table above and illustrated in the figure below.

Chart 167 – De Anza Division MAIFI Performance



The higher than average 2017 De Anza MAIFI was attributed to the following:

1. On March 21st, the division experienced momentary outages of unknown cause on the following circuits:
    a. Camp Evers 2106
    b. Lawrence 1106, 1107, 1108, and 1109
    c. Los Altos 1105, 1106, and 1107
    d. Loyola 401, 403, and 1101

    These outages contributed 0.071 customer-interruptions to the division's MAIFI.
2. On October 7th, momentary outages were experienced on the Los Gatos 1102 circuits (caused by a squirrel) and on the Mountain View 1104 circuit due to an operating error (grounds made contact with the line). These outages contributed 0.046 customer-interruptions to the division's MAIFI.

3. Diablo Division Performance Assessment

Diablo Division Performance

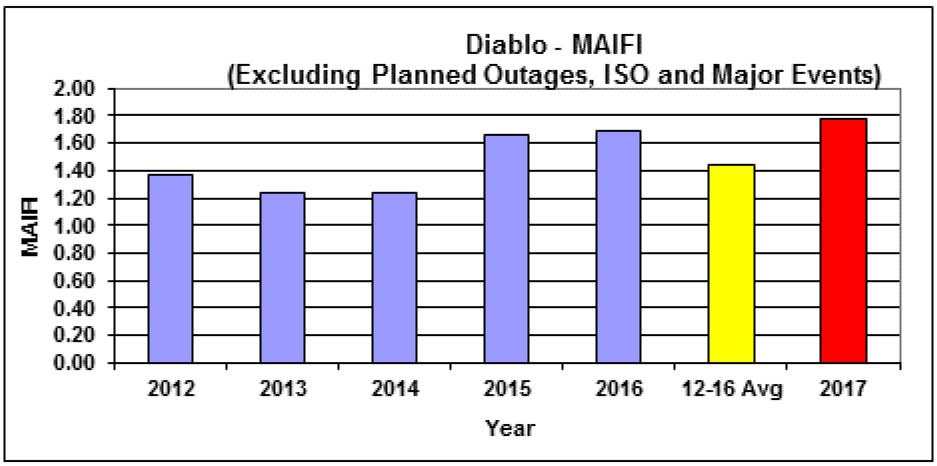
Table 11: Diablo Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
DIABLO	2012	98.9	1.182	1.367	83.7
DIABLO	2013	80.8	0.995	1.243	81.2
DIABLO	2014	70.0	0.872	1.240	80.3
DIABLO	2015	73.8	0.860	1.666	85.8
DIABLO	2016	76.5	1.003	1.688	76.3
5-Year Average	12-16 Avg	80.0	0.982	1.441	81.4
DIABLO	2017	78.0	0.876	1.775	89.1
	%Difference	-2.5%	-10.9%	23.2%	9.4%

Diablo Division MAIFI Performance

Diablo Division's 2017 MAIFI performance of 1.775 was 0.334 (or 23.2%) customer-interruptions higher than the previous 5-year average of 1.441 as shown in the table above and illustrated in the figure below.

Chart 168 – Diablo Division MAIFI Performance



The higher than average 2017 Diablo Division MAIFI was attributed to the following:

1. On June 16th, a momentary outage on at Willow Pass Substation caused by a power transformer and two "unknown cause" outages to Kirker 2105 and 2109 contributed 0.093 customer-interruptions to Diablo's MAIFI.
2. On June 20th, there were seven momentary events on several circuits of unknown cause. These events contributed 0.070 customer-interruptions to Diablo's MAIFI.
3. On November 28th, Kirker Substation experienced a momentary outage of unknown cause that contributed 0.057 customer-interruptions to Diablo's

MAIFI.

4. East Bay Division Performance Assessment

East Bay Division Performance

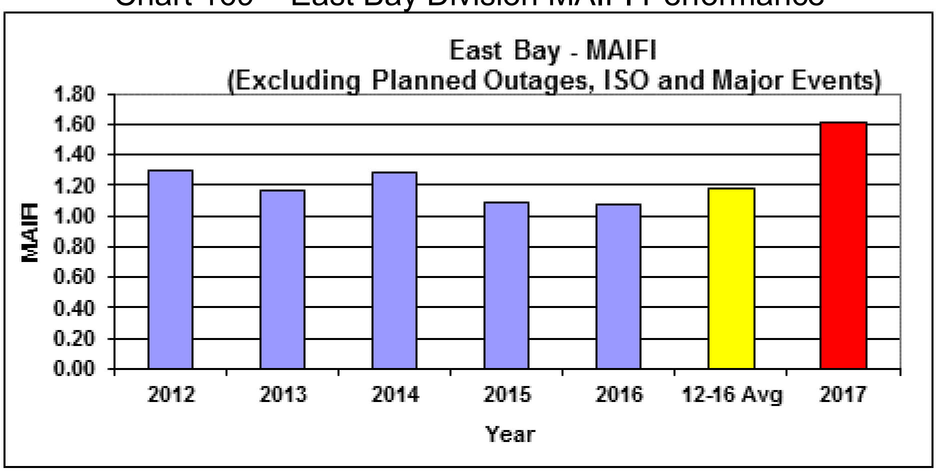
Table 12: East Bay Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
EAST BAY	2012	100.7	1.268	1.300	79.4
EAST BAY	2013	63.2	0.818	1.171	77.3
EAST BAY	2014	67.3	0.758	1.279	88.8
EAST BAY	2015	45.0	0.586	1.085	76.9
EAST BAY	2016	101.4	1.060	1.067	95.6
5-Year Average	12-16 Avg	75.5	0.898	1.180	84.1
EAST BAY	2017	73.8	0.903	1.608	81.7
	%Difference	-2.3%	0.6%	36.2%	-2.9%

East Bay Division MAIFI Performance

East Bay Division's 2017 MAIFI performance of 1.608 was 0.428 customer-interruptions (or 36.2%) higher than the previous 5-year average of 1.180 as shown in the table above and illustrated in the figure below.

Chart 169 – East Bay Division MAIFI Performance



The higher than average 2017 East Bay Division MAIFI was attributed to the following:

1. On February 14th, momentary outages of unknown cause were experienced on the Beck St. 401 and Station A 1116 circuits contributed 0.143 customer-interruptions to East Bay division's MAIFI.
2. On September 14th, a failed 115 kV circuit breaker failed causing a momentary outage at El Cerrito G Substation contributed 0.192 customer-

interruptions to East Bay division's MAIFI.

3. On October 19th, a broken pole on the Richmond 1119 circuit produced a momentary outage prior to resulting in a sustained outage. In addition, the Richmond 1130 circuit experienced a momentary outage of unknown cause. These contributed 0.063 customer-interruptions to the division's MAIFI.

5. Humboldt Division Performance Assessment

Humboldt Division Performance

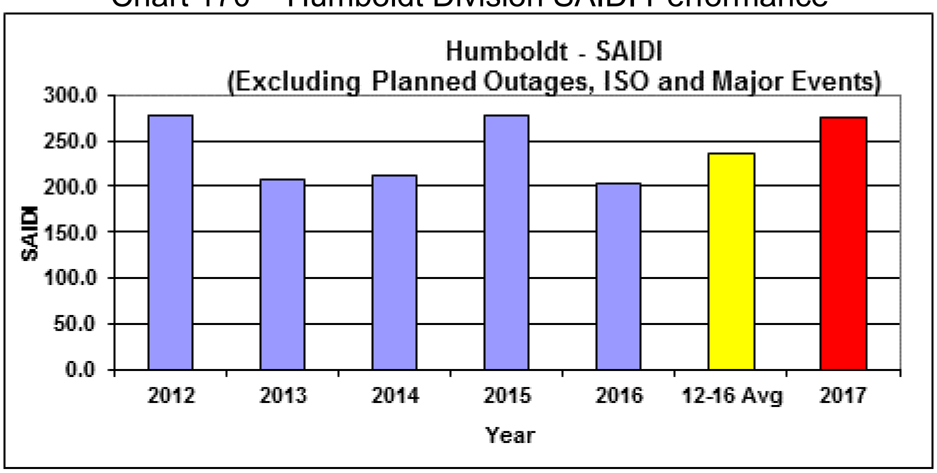
Table 13: Humboldt Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
HUMBOLDT	2012	278.1	1.549	4.341	179.5
HUMBOLDT	2013	208.3	1.161	2.435	179.4
HUMBOLDT	2014	212.5	1.204	1.822	176.5
HUMBOLDT	2015	276.3	1.621	2.423	170.5
HUMBOLDT	2016	202.6	1.527	2.006	132.7
5-Year Average	12-16 Avg	235.6	1.412	2.605	166.8
HUMBOLDT	2017	275.1	1.306	2.311	210.6
	%Difference	16.8%	-7.5%	-11.3%	26.3%

Humboldt Division SAIDI Performance

Humboldt Division's 2017 SAIDI performance of 275.1 was 39.6 customer-minutes (or 16.8%) higher than the previous 5-year average of 235.6 as shown in the table above and illustrated in the figure below.

Chart 170 – Humboldt Division SAIDI Performance



The higher than average 2017 SAIDI performance was due to the following:

1. On May 6th, the division experienced strong northwesterly winds causing several outages that contributed 19.2 customer-minutes to the division's

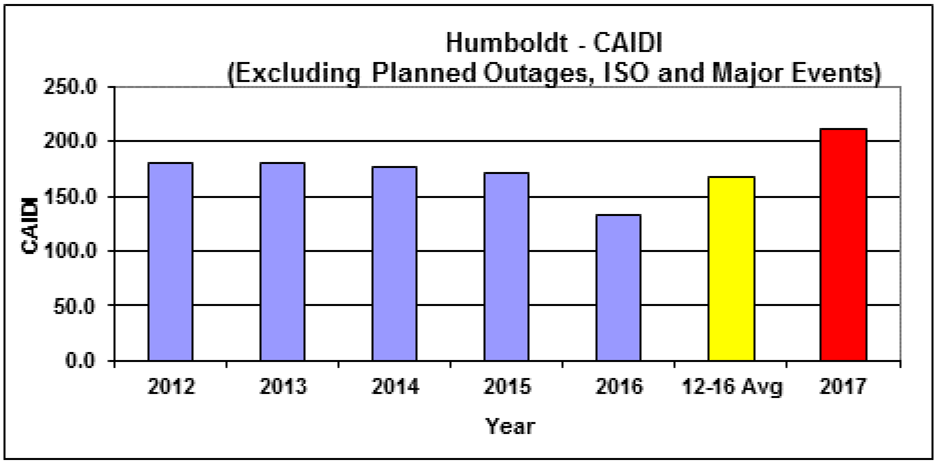
SAIDI performance.

2. On May 25th, a tree fell into the Maple Creek – Hoopa 60 kV line that contributed 15.8 customer-minutes to the division's SAIDI performance.

<u>Humboldt Division CAIDI Performance</u>

Humboldt Division's 2017 CAIDI performance of 210.6 was 43.8 minutes (or 26.3%) higher than the previous 5-year average of 166.8 as shown in the table above and illustrated in the figure below.

Chart 171 – Humboldt Division CAIDI Performance



The higher than average 2017 CAIDI performance was due to the following outage events:

1. January 1st – Tree fell into the Maple Creek – Hoopa 60 kV line
2. March 6th - Tree fell into the Maple Creek – Hoopa 60 kV line
3. May 6th - Strong northwesterly winds caused several outages (over 60)
4. May 25th - A tree fell into the Maple Creek – Hoopa 60 kV line
5. November 14th – A tree fell into the Willow Creek 1103 circuit

These outages combined contributed 34.2 minutes to the division's CAIDI performance.

6. Kern Division Performance Assessment

Kern Division Performance

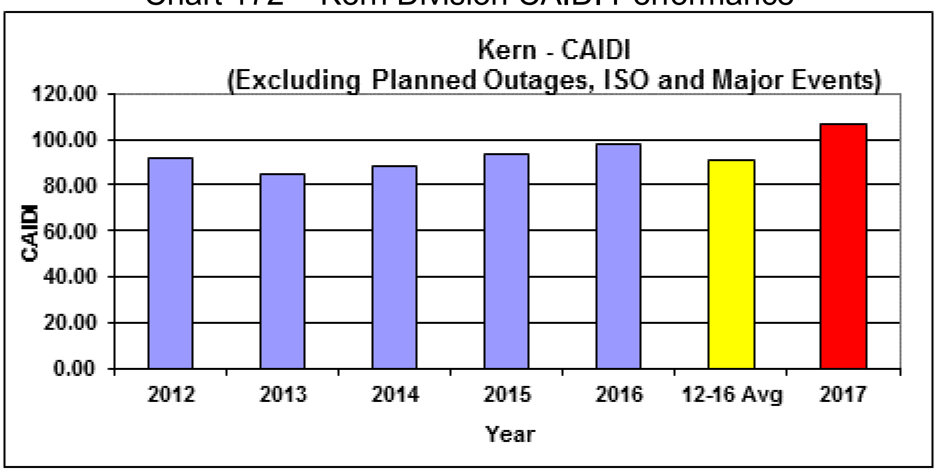
Table 14: Kern Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
KERN	2012	89.9	0.977	1.222	92.0
KERN	2013	88.3	1.046	1.114	84.4
KERN	2014	83.7	0.952	1.619	87.9
KERN	2015	80.4	0.862	1.850	93.2
KERN	2016	89.2	0.909	2.103	98.1
5-Year Average	12-16 Avg	86.3	0.949	1.582	90.9
KERN	2017	78.1	0.733	1.563	106.5
	%Difference	-9.4%	-22.7%	-1.2%	17.2%

Kern Division CAIDI Performance

Kern Division's 2017 CAIDI performance of 106.5 minutes is 15.6 minutes (or 17.2%) higher than the previous 5-year average of 90.9 as shown in the table above and illustrated below.

Chart 172 – Kern Division CAIDI Performance



The higher than average 2017 CAIDI performance is due to the following outage events:

1. February 16th – An outage on the Carrizo Plains 1101 circuit due to an overhead conductor and insulator failure.
2. April 8th – An outage on the Kern Oil 1114 circuit due to poles that were leaning caused by heavy winds.
3. May 22nd – On outage on the Kern Power 2101 circuit due to an elbow failure.
4. June 22nd – An outage on the Seventh Standard Substation 2101 circuit due

to a failed elbow.

5. July 1st – A car pole accident on the Weedpatch 70 kV line impacted customers on the Weedpatch 1101 and 1103 circuits.
6. August 30th – A lightning related outage on the Westpark 1110 circuit.

These outages combined contributed eight minutes to the division's CAIDI performance.

7. Los Padres Division Performance Assessment

Los Padres Division Performance

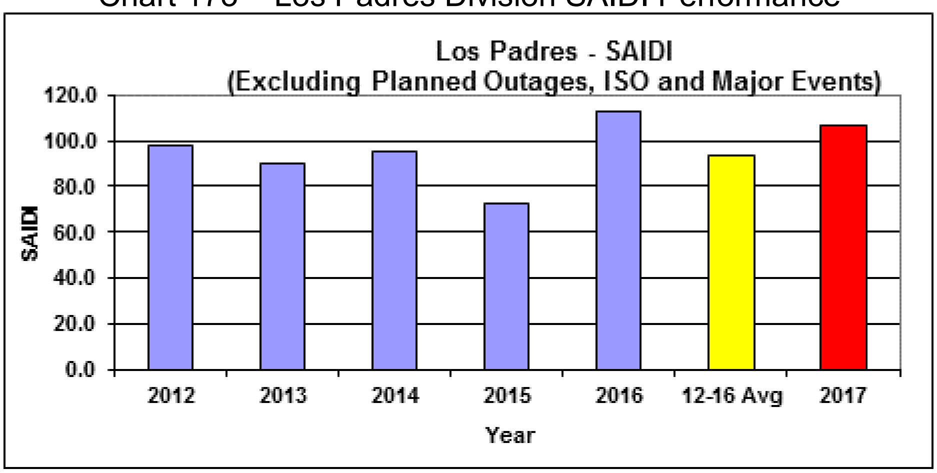
Table 15: Los Padres Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
LOS PADRES	2012	97.6	1.034	1.625	94.4
LOS PADRES	2013	89.7	0.736	0.950	121.8
LOS PADRES	2014	95.6	1.019	1.159	93.8
LOS PADRES	2015	72.2	0.687	1.408	105.1
LOS PADRES	2016	112.3	1.146	1.675	98.0
5-Year Average	12-16 Avg	93.5	0.924	1.363	101.1
LOS PADRES	2017	106.7	0.944	1.518	113.0
	%Difference	14.1%	2.1%	11.4%	11.7%

Los Padres Division SAIDI Performance

Los Padres Division's 2017 SAIDI performance of 106.7 customer-minutes is 13.2 customer-minutes (or 14.1%) higher than the previous 5-year average of 93.5 as shown in the table above and illustrated below.

Chart 173 – Los Padres Division SAIDI Performance

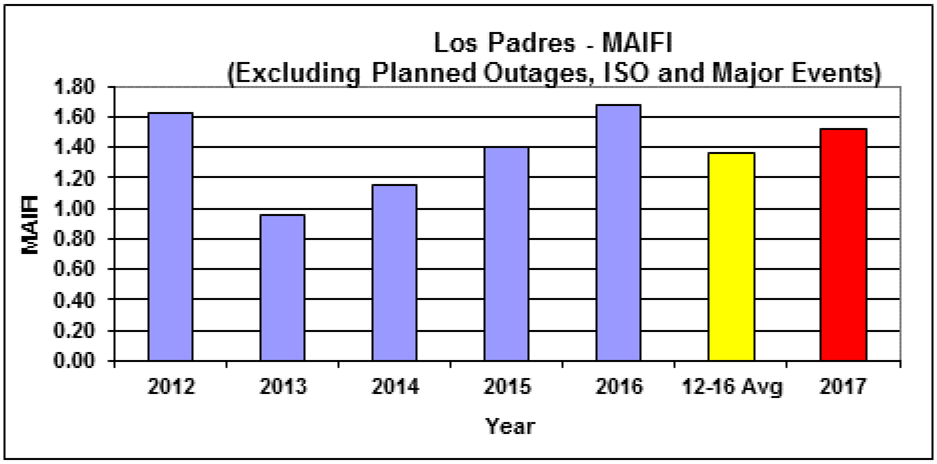


The higher than average 2017 SAIDI performance is due to a burned overhead jumper on the Cayucos 1101 circuit on October 16th. This outage contributed 9.8 customer-minutes to the division's SAIDI performance.

Los Padres Division MAIFI Performance

Los Padres Division's 2017 MAIFI performance of 1.518 customer-interruptions is 0.155 customer-interruptions (or 11.4%) higher than the previous 5-year average of 1.363 as shown in the table above and illustrated below.

Chart 174 – Los Padres Division MAIFI Performance



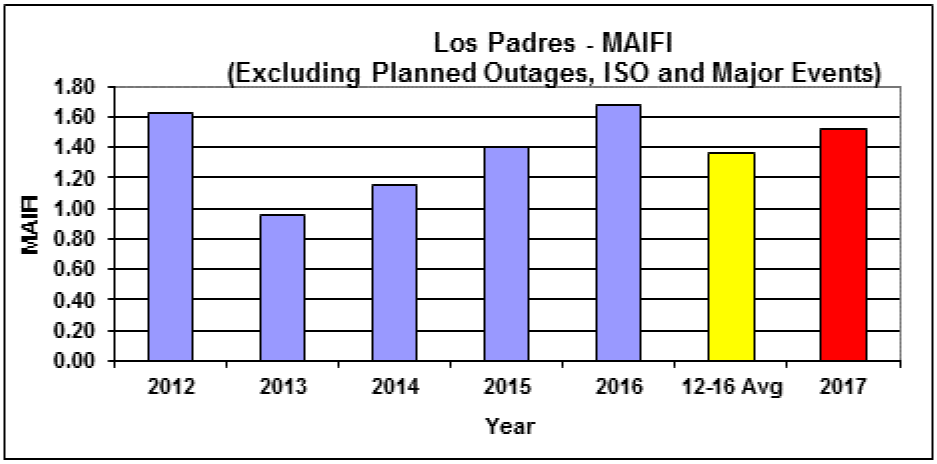
The higher than average 2017 MAIFI performance is due to the following:

1. On January 31st, a tree-related outage on the Atascadero 1103 circuit produced three momentary outages prior to producing a sustained outage. This outage contributed 0.053 customer-interruptions to the division's MAIFI performance.
2. On February 26th, an overhead conductor related outage on the Templeton 2113 circuit produced momentary outages prior to producing a sustained outage. This outage contributed 0.055 customer-interruptions to the division's MAIFI performance.

Los Padres Division CAIDI Performance

Los Padres Division's 2017 CAIDI performance of 113.0 minutes is 11.9 minutes (or 11.7%) higher than the previous 5-year average of 101.1 as shown in the table above and illustrated below.

Chart 175 – Los Padres Division CAIDI Performance



The higher than average 2017 CAIDI performance is due to a burned overhead jumper on the Cayucos 1101 circuit on October 16th. This outage contributed 7.7 minutes to the division's CAIDI performance.

8. Mission Division Performance Assessment

Mission Division Performance

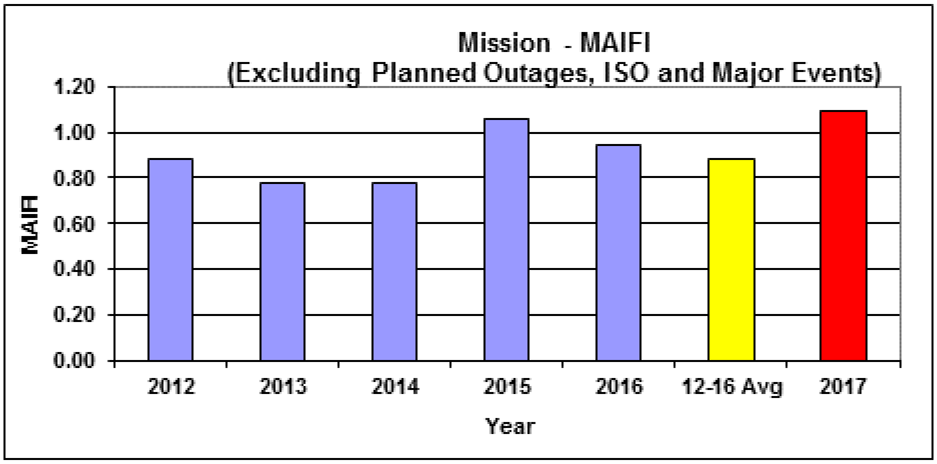
Table 16: Mission Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
MISSION	2012	91.2	0.881	0.884	103.4
MISSION	2013	68.3	0.735	0.776	92.9
MISSION	2014	65.1	0.666	0.776	97.7
MISSION	2015	56.7	0.543	1.054	104.4
MISSION	2016	72.7	0.702	0.939	103.7
5-Year Average	12-16 Avg	70.8	0.705	0.886	100.4
MISSION	2017	60.1	0.602	1.090	99.9
	%Difference	-15.0%	-14.6%	23.0%	-0.5%

Mission Division MAIFI Performance

Mission Division's 2017 MAIFI performance of 1.090 was 0.204 customer-interruptions (or 23.0%) higher than the previous 5-year average of 0.886 as shown in the table above and illustrated in the figure below.

Chart 176 – Mission Division MAIFI Performance



The higher than average 2017 Mission Division MAIFI was attributed to the following:

1. On March 27th, a momentary outage of unknown cause was experienced on the Castro Valley 1109 circuit. This outage contributed 0.053 customer-interruptions to the division's MAIFI performance.
2. On May 3rd, momentary outages of unknown cause were experienced on the San Ramon 2103, Castro Valley 1101, Vineyard 2105 and Vineyard circuits. In addition, an underground splice failure on the Vineyard 2104 circuit produced a momentary outage before becoming a sustained outage. These outages contributed 0.041 customer-interruptions to the division's MAIFI performance.
3. On November 11th, a failed overhead switch on the North Dublin 2101 circuit produced momentary outages before becoming a sustained outage. Later that day, two momentary outages were experience on the North Dublin 2101 circuit. These outages contributed 0.047 customer-interruptions to the division's MAIFI performance.

9. North Bay Division Performance Assessment

North Bay Division Performance

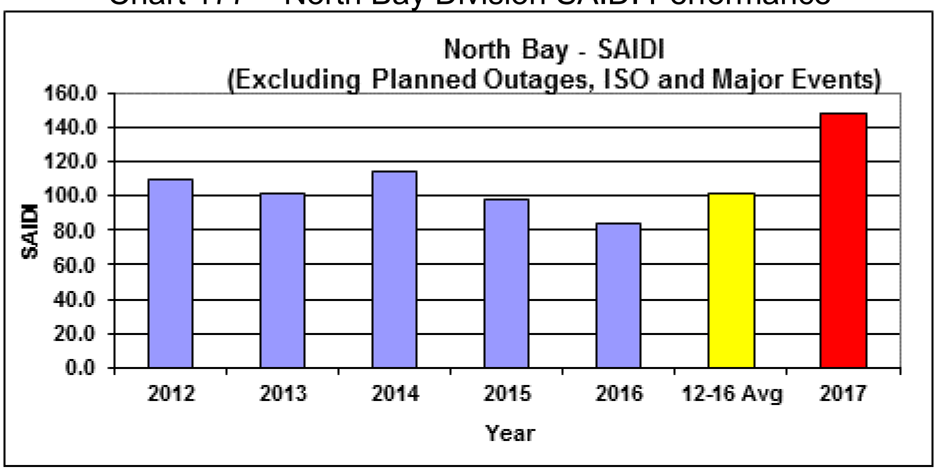
Table 17: North Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
NORTH BAY	2012	109.7	0.791	1.647	138.8
NORTH BAY	2013	101.8	0.909	1.455	111.9
NORTH BAY	2014	114.0	0.885	2.495	128.8
NORTH BAY	2015	97.4	0.904	1.977	107.8
NORTH BAY	2016	83.9	0.758	1.223	110.7
5-Year Average	12-16 Avg	101.4	0.849	1.759	119.3
NORTH BAY	2017	148.5	0.955	1.866	155.5
	%Difference	46.5%	12.4%	6.0%	30.3%

North Bay Division SAIDI Performance

North Bay Division's 2017 SAIDI performance of 148.5 was 47.1 customer-minutes (or 46.5%) higher than the previous 5-year average of 101.4 as shown in the table above and illustrated in the figure below.

Chart 177 – North Bay Division SAIDI Performance



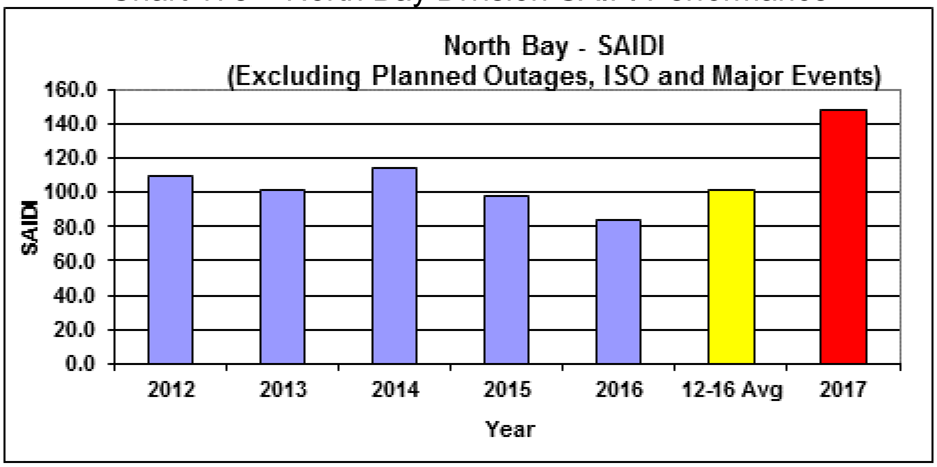
The higher than average 2017 North Bay Division SAIDI was attributed to the following:

1. On July 7th, a failed motor operated air switch at Las Gallinas Substation contributed 4.7 customer-minutes to the division's SAIDI performance.
2. The October wildfires (October 10th – 14th) contributed 35.0 customer-minutes to the division's SAIDI performance.
3. On October 19th, a broken cross-arm on the Vallejo Station B 413 circuit contributed 1.8 customer-minutes to the division's SAIDI performance.

North Bay Division SAIFI Performance

North Bay Division's 2017 SAIFI performance of 0.995 was 0.105 customer-interruptions (or 12.4%) higher than the previous 5-year average of 0.849 as shown in the table above and illustrated in the figure below.

Chart 178 – North Bay Division SAIFI Performance



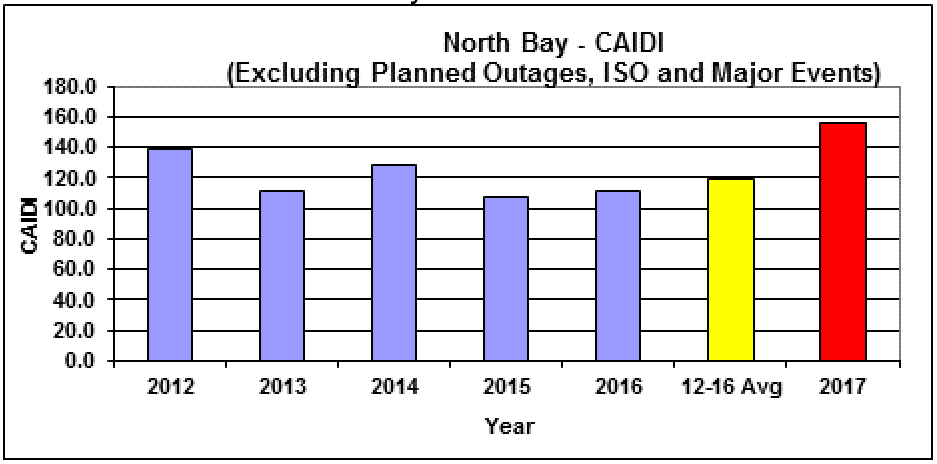
The higher than average 2017 North Bay Division SAIFI was attributed to the following:

1. The February 8th storm event contributed 0.025 customer-interruptions to the division's SAIFI performance.
2. On July 7th, a failed motor operated air switch at Las Gallinas Substation contributed 0.029 customer-interruptions to the division's SAIFI performance.
3. On July 10th, a failed switch at Sausalito Substation contributed 0.030 customer-interruptions to the division's SAIFI performance.

North Bay Division CAIDI Performance

North Bay Division's 2017 CAIDI performance of 155.5 was 36.2 minutes (or 30.3%) higher than the previous 5-year average of 119.3 as shown in the table above and illustrated in the figure below.

Chart 179 – North Bay Division CAIDI Performance



The higher than average 2017 North Bay Division CAIDI was attributed to the October wildfires (October 10th – 14th) that contributed 35.1 minutes to the division's CAIDI performance.

10. Peninsula Division Performance Assessment

Peninsula Division Performance

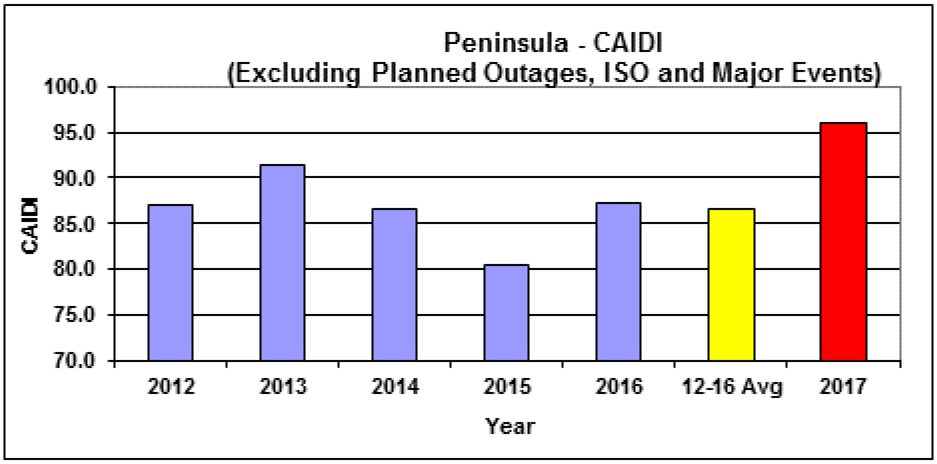
Table 18: Peninsula Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
PENINSULA	2012	87.0	0.999	1.527	87.1
PENINSULA	2013	70.7	0.774	1.124	91.3
PENINSULA	2014	77.8	0.900	1.166	86.5
PENINSULA	2015	60.5	0.752	1.601	80.4
PENINSULA	2016	78.8	0.905	1.197	87.2
5-Year Average	12-16 Avg	75.0	0.866	1.323	86.6
PENINSULA	2017	61.5	0.640	1.310	96.0
	%Difference	-18.0%	-26.1%	-0.9%	10.9%

Peninsula Division CAIDI Performance

Peninsula Division's 2017 CAIDI performance of 96.0 was 9.4 minutes (or 10.9%) higher than the previous 5-year average of 86.6 as shown in the table above and illustrated in the figure below.

Chart 180 – Peninsula Division CAIDI Performance



The higher than average 2017 Peninsula Division CAIDI was attributed to the following outage events:

1. On June 13th, an underground splice failed on the Bay Meadows 1107 circuit.
2. On June 30th, an underground conductor failed on the Daly City 1102 circuit.
3. On September 2nd, a failed underground transformer on the Daly City 1102 circuit and another failed transformer on the Serramonte 1104 circuit were the main outages impacting the daily CAIDI.

These outages combined contributed 4.4 minutes to the division's CAIDI performance.

11. Sacramento Division Performance Assessment

Sacramento Division Performance

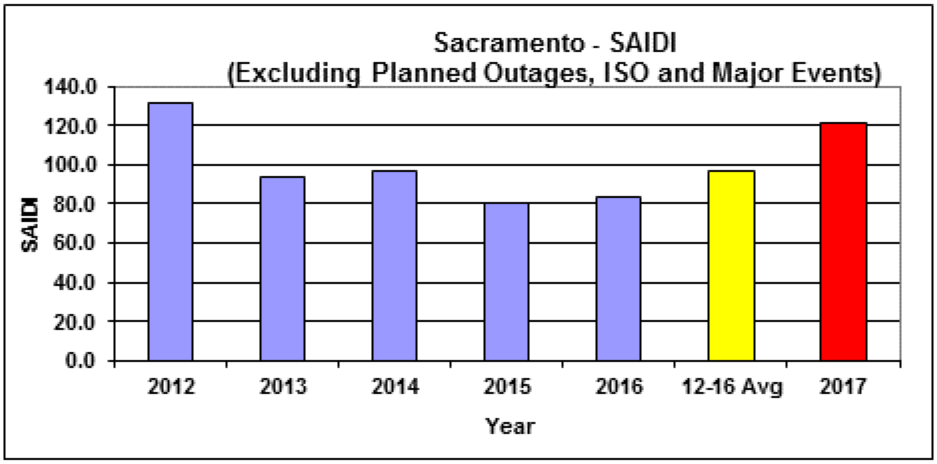
Table 19: Sacramento Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SACRAMENTO	2012	131.3	1.190	1.979	110.4
SACRAMENTO	2013	93.4	0.922	1.584	101.4
SACRAMENTO	2014	96.6	0.793	1.272	121.9
SACRAMENTO	2015	80.1	0.799	1.556	100.3
SACRAMENTO	2016	83.6	0.944	1.563	88.5
5-Year Average	12-16 Avg	97.0	0.930	1.591	104.3
SACRAMENTO	2017	121.2	1.070	1.777	113.2
	%Difference	24.9%	15.1%	11.7%	8.5%

Sacramento Division SAIDI Performance

Sacramento Division's 2017 SAIDI performance of 121.2 was 24.4 customer-minutes (or 24.9%) higher than the previous 5-year average of 97.0 as shown in the table above and illustrated in the figure below.

Chart 181 – Sacramento Division SAIDI Performance



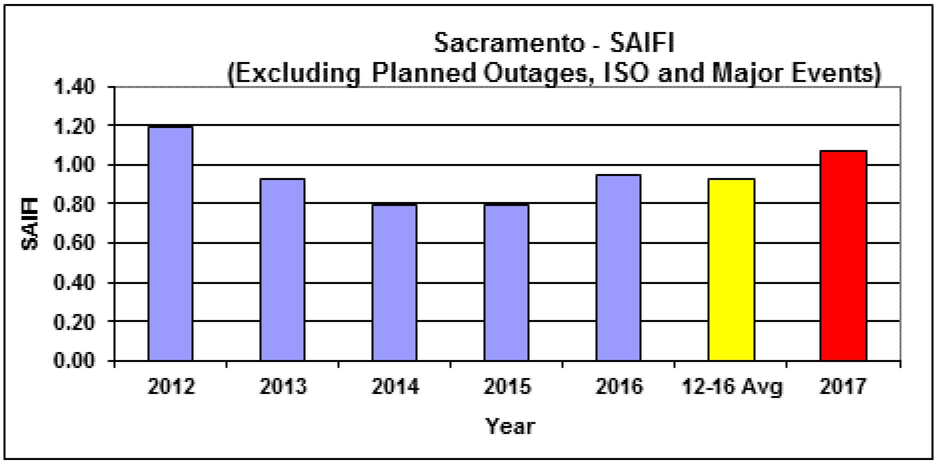
The higher than average 2017 Sacramento Division SAIDI was attributed to the following:

1. On February 15th, a failed overhead line regulator on the Plainfield 1101 circuit contributed 3.9 customer-minutes to the division's SAIDI performance.
2. On March 1st, an underground cable failure on the Peabody 2112 circuit contributed 2.9 customer-minutes to the division's SAIDI performance. On the same day, a broken pole on the Suisun 1105 circuit contributed 1.6 customer-minutes to the division's SAIDI performance.
3. On June 16th, a burned open jumper on the Suisun 1102 circuit contributed 2.7 customer-minutes to the division's SAIDI and tree-related outage on the Vacaville 1111 circuit contributed 0.7 customer-minutes to the division's SAIDI performance.
4. On July 7th, a burned open jumper on the Peabody 2107 circuit contributed 5.8 customer-minutes to the division's SAIDI performance.

Sacramento Division SAIFI Performance

Sacramento Division's 2017 SAIFI performance of 1.070 was 0.140 customer-interruptions (or 15.1%) higher than the previous 5-year average of 0.930 as shown in the table above and illustrated in the figure below.

Chart 182 – Sacramento Division SAIFI Performance



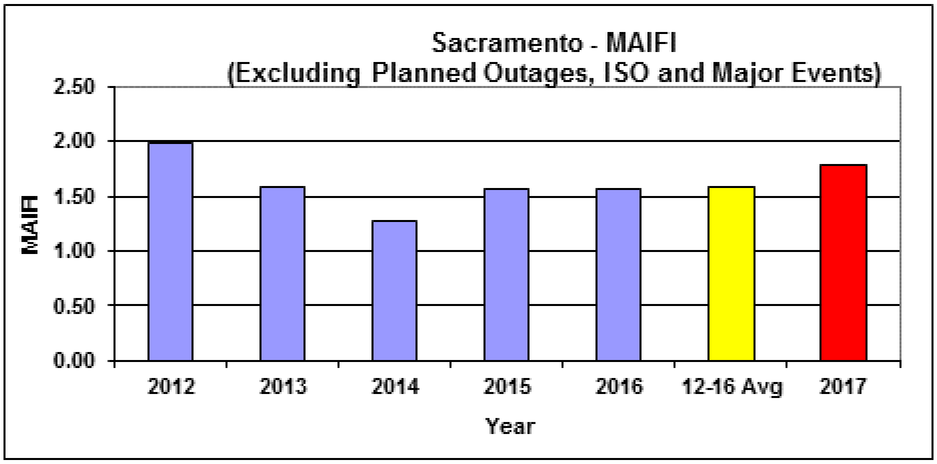
The higher than average 2017 Sacramento Division SAIFI was attributed to the following:

1. On February 15th, a failed overhead line regulator on the Plainfield 1101 circuit contributed 0.024 customer-interruptions to the division's SAIFI performance.
2. On March 1st, an underground cable failure on the Peabody 2112 circuit contributed 0.018 customer-interruptions to the division's SAIFI performance. On the same day, a broken pole on the Suisun 1105 circuit contributed 0.017 customer-interruptions to the division's SAIFI performance.
3. On June 16th, a burned open jumper on the Suisun 1102 circuit contributed 0.017 customer-interruptions to the division's SAIFI and a tree-related outage on the Vacaville 1111 circuit contributed 0.007 customer-interruptions to the division's SAIFI performance.
4. On July 7th, a burned open jumper on the Peabody 2107 circuit contributed 0.013 customer-interruptions to the division's SAIFI performance.

<u>Sacramento Division MAIFI Performance</u>

Sacramento Division's 2017 MAIFI performance of 1.777 was 0.186 customer-interruptions (or 11.7%) higher than the previous 5-year average of 1.591 as shown in the table above and illustrated in the figure below.

Chart 183 – Sacramento Division MAIFI Performance



The higher than average 2017 Sacramento Division MAIFI was attributed to the following:

1. The storm event of February 24th caused several momentary outages that contributed 0.093 customer-interruptions to the division's MAIFI performance.
2. Lightning activity on June 11th contributed to various momentary outages that contributed 0.097 customer-interruptions to the division's MAFI performance.

12. San Jose Division Performance Assessment

San Jose Division Performance

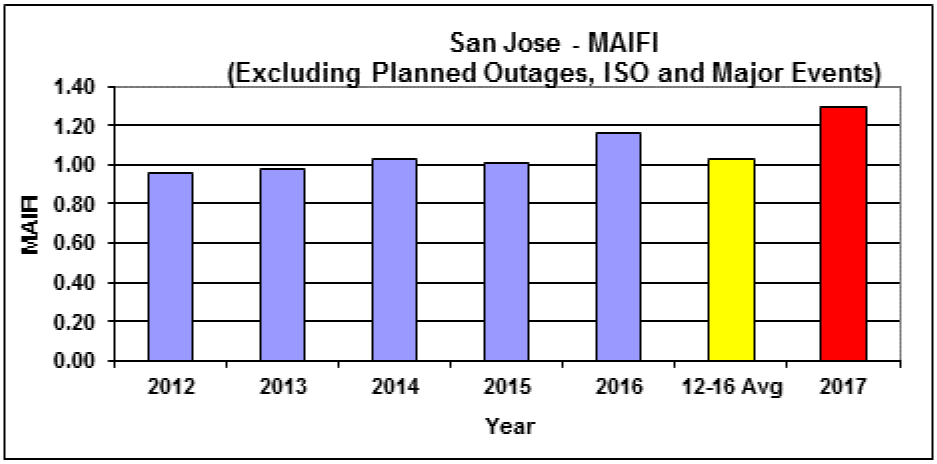
Table 20: San Jose Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SAN JOSE	2012	80.6	0.779	0.958	103.5
SAN JOSE	2013	97.1	0.915	0.976	106.1
SAN JOSE	2014	80.3	0.800	1.030	100.3
SAN JOSE	2015	65.9	0.678	1.008	97.2
SAN JOSE	2016	65.5	0.644	1.157	101.7
5-Year Average	12-16 Avg	77.9	0.763	1.026	102.1
SAN JOSE	2017	72.3	0.739	1.293	97.8
	%Difference	-7.1%	-3.1%	26.1%	-4.2%

San Jose Division MAIFI Performance

San Jose Division's 2017 MAIFI performance of 1.293 was 0.267 customer-interruptions (or 26.1%) higher than the previous 5-year average of 1.026 as shown in the table above and illustrated in the figure below.

Chart 184 – San Jose Division MAIFI Performance



The higher than average 2017 San Jose Division MAIFI was attributed to the following:

1. On March 18th, a failed elbow on the Edenvale 2108 circuit caused momentary outages prior to becoming a sustained outage. The momentary outages were due to miss-coordination between the circuit breaker and line interrupter. This outage contributed 0.047 customer-interruptions to the division's MAIFI.
2. On April 16th, momentary outages of unknown cause on the Edenvale 1102 circuit contributed 0.013 customer-interruptions to the division's MAIFI performance. On the same day, a failed underground splice on the Edenvale 2102 circuit produced a momentary outage prior to becoming a sustained outage. This outage contributed 0.018 customer-interruptions to the division's MAIFI performance.
3. The heat wave on September 1st and 2nd caused several momentary outages. These two-day momentary outages contributed 0.099 customer-interruptions to the division's MAIFI.

13. Sierra Division Performance Assessment

Sierra Division Performance

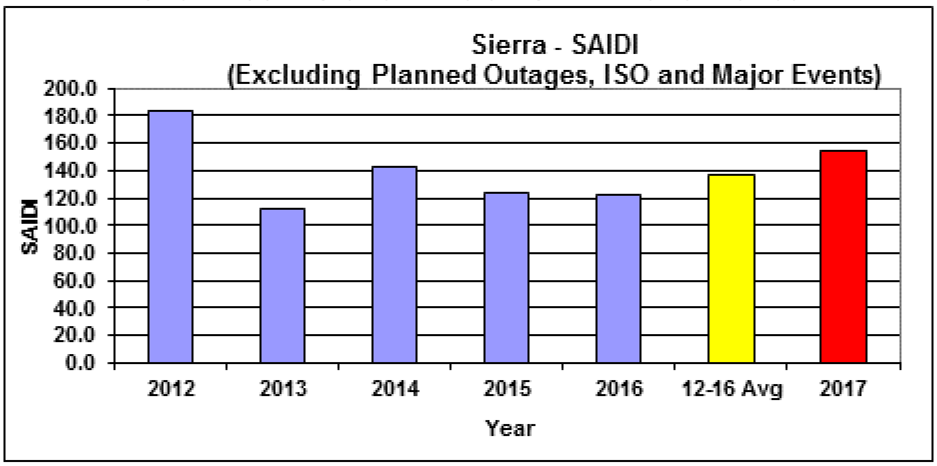
Table 21: Sierra Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SIERRA	2012	183.2	1.319	2.910	138.9
SIERRA	2013	111.5	1.259	3.105	88.6
SIERRA	2014	142.5	1.198	2.141	119.0
SIERRA	2015	123.2	1.115	2.816	110.5
SIERRA	2016	121.6	1.025	1.733	118.6
5-Year Average	12-16 Avg	136.4	1.183	2.541	115.3
SIERRA	2017	155.0	1.191	1.897	130.2
	%Difference	13.7%	0.7%	-25.4%	12.9%

Sierra Division SAIDI Performance

Sierra Division's 2017 SAIDI performance of 155.0 was 18.6 customer-minutes (or 13.7%) higher than the previous 5-year average of 136.4 as shown in the table above and illustrated in the figure below.

Chart 185 – Sierra Division SAIDI Performance

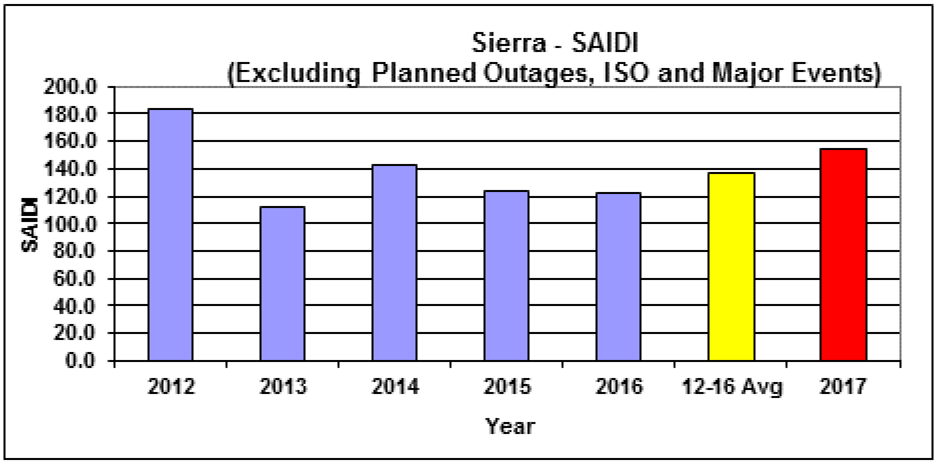


The higher than average 2017 Sacramento Division SAIDI was attributed to the January 4th storm event that contributed 14.4 customer-minutes to the division's SAIDI performance.

Sierra Division CAIDI Performance

Sierra Division's 2017 CAIDI performance of 130.2 was 14.9 minutes (or 12.9%) higher than the previous 5-year average of 115.3 as shown in the table above and illustrated in the figure below.

Chart 186 – Sierra Division CAIDI Performance



The higher than average 2017 Sacramento Division CAIDI was attributed to the January 4th storm event that contributed 9.5 customer-minutes to the division's CAIDI performance.

14. Sonoma Division Performance Assessment

<u>Sonoma Division Performance</u>

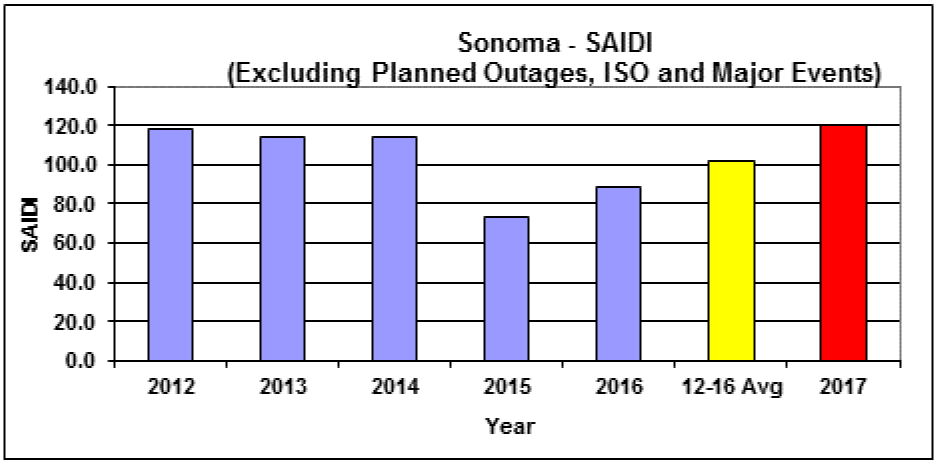
Table 22: Sonoma Division Performance

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SONOMA	2012	117.9	0.895	1.732	131.8
SONOMA	2013	113.9	0.846	2.256	134.7
SONOMA	2014	113.7	0.899	1.587	126.6
SONOMA	2015	73.0	0.673	1.534	108.5
SONOMA	2016	88.6	0.792	1.513	111.8
5-Year Average	12-16 Avg	101.4	0.821	1.724	123.5
SONOMA	2017	120.7	0.886	1.594	136.2
	%Difference	19.0%	7.9%	-7.6%	10.2%

<u>Sonoma Division SAIDI Performance</u>

Sonoma Division's 2017 SAIDI performance of 120.7 was 19.3 customer-minutes (or 19.0%) higher than the previous 5-year average of 101.4 as shown in the table above and illustrated in the figure below.

Chart 187 – Sonoma Division SAIDI Performance

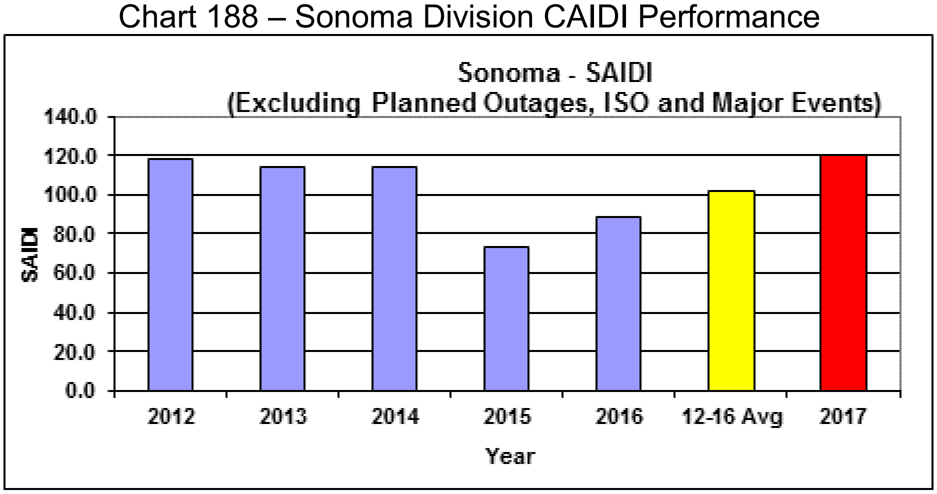


The higher than average 2017 Sonoma Division SAIDI was attributed to the October wildfires (October 10th – 13th) that contributed 15.3 customer-minutes to the division's SAIDI performance.

Sonoma Division CAIDI Performance

Sonoma Division's 2017 CAIDI performance of 136.2 was 12.7 minutes (or 10.2%) higher than the previous 5-year average of 123.5 as shown in the table above and illustrated in the figure below.

Chart 188 – Sonoma Division CAIDI Performance



The higher than average 2017 Sonoma Division CAIDI was attributed to the October wildfires (October 10th – 13th) that contributed 8.1minutes to the division's CAIDI performance.

ii. 2017 Excludable Major Event Day (MED) CAIDI Performance

Excludable Major Event Days (MED) In 2017

This section contains PG&E's report on weather related excludable major event days (MED) for each division in which CAIDI[7] varied by 25 percent or more in the division benchmark, as required by Decision 04-10-034 and Decision 16-01-008, Appendix B, footnote 6. Per D.04-10-034, the division benchmark is calculated from the rolling average of the prior 10 weather-related excludable major events.[8] PG&E is also required by D.04-10-034 to provide such a report for the system, where the system performance varies by more than 10 percent from the rolling average of the prior 10 weather-related system-wide excludable major event days, whichever yields more event days.

There were fifteen weather-related major events, totaling 29 weather-related Major Event Days in 2017[9].

Table 23 – Summary MED days

2017 Weather-Related Major Event Days	# Weather-Related Events	MEDs
January 3, 2017	1	1
January 8-11, 2017	2	4
January 18-23, 2017	3	6
February 7, 2017	4	1
February 9, 2017	5	1
February 17-22, 2017	6	5
April 6-7, 2017	7	2
June 18, 2017	8	1
September 3, 2017	9	1
September 11, 2017	10	1
October 8-9, 2017	11	2
October 14, 2017	12	1
October 20, 2017	13	1
December 4, 2017	14	1
December 16, 2017	15	1
		29

NOTE: February 19th was not a MED.

7 Per Decision 16-01-008, Appendix B footnote 6, Decision 04-10-034 only applies to PG&E: Investigate and report on all weather-related excludable major events for each division in which CAIDI varies by 25 percent or more from the division benchmark. The division benchmarks are calculated from the rolling average of the prior 10 weather-related excludable events as defined by IEEE 1366.

8 A major event is defined in the IEEE Standard 1366. As in prior reports, PG&E is using the "prior ten weather related excludable major events" prior to the calendar year that is the subject of the report.

9 April 21st was a non-weather related MED (outage at Larkin Substation).

The first major event day of the year, January 3, 2017, involved a winter storm system that moved into PG&E's service territory producing heavy rain and strong south winds, and mountain snow.

Table 24 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(January 3, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	January 3, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	446.2	198.0%	Yes
CENTRAL COAST	139.0	227.2	163.4%	Yes
DE ANZA	137.6	275.2	200.0%	Yes
DIABLO	126.9	70.1	55.3%	NO
EAST BAY	140.1	121.9	87.0%	NO
FRESNO	98.2	153.2	156.0%	Yes
HUMBOLDT	606.8	2564.1	422.6%	Yes
KERN	117.6	472.5	401.7%	Yes
LOS PADRES	345.3	120.9	35.0%	NO
MISSION	138.5	87.8	63.4%	NO
NORTH BAY	203.0	281.3	138.6%	Yes
NORTH VALLEY	436.3	614.3	140.8%	Yes
PENINSULA	123.7	111.6	90.2%	NO
SACRAMENTO	138.8	212.4	153.1%	Yes
SAN FRANCISCO	258.7	200.8	77.6%	NO
SAN JOSE	134.9	379.8	281.5%	Yes
SIERRA	301.2	669.0	222.1%	Yes
SONOMA	190.5	156.8	82.3%	NO
STOCKTON	188.1	92.5	49.2%	NO
YOSEMITE	170.0	86.3	50.8%	NO

Table 24 – January 3, 2017 CAIDI Performance

1. January 3, 2017 Major Event Day

1.1 System CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SYSTEM	December 30, 2014	202.6	643
SYSTEM	February 6-8, 2015	395.4	540
SYSTEM	April 6, 2015	193.5	85
SYSTEM	June 8, 2015	122.6	182
SYSTEM	July 18-19, 2015	169.4	282
SYSTEM	December 13, 2015	127.7	523
SYSTEM	December 24, 2015	344.5	135
SYSTEM	February 17, 2016	144.6	380
SYSTEM	March 5, 2016	176.4	620
SYSTEM	October 14, 2016	152.3	326
	Average of 10 excludable major events	225.4	391
SYSTEM	January 3, 2017	446.2	277
	% Difference	98.0%	-29%

Table 25 – System Historical Performance

As indicated in Table 25, the system CAIDI value of 446.2 minutes for the January 3rd major event was 98.0% higher than the 225.4 minute average of the prior 10 weather-related excludable major events.

Outages to the following six circuits were the top contributing factors to the higher system CAIDI value:

- Hoopa 1101 circuit – experienced several tree related outages, but seven were very impactful due to trees falling into the line.
- Willow Creek 1101 circuit – experienced two very impactful tree related outages when trees fell into the line.
- Willow Creek 1102 circuit – experienced an outage when a tree falling into the line.
- Willow Creek 1103 circuit – experienced two outages; (1) due to an outage of unknown cause (the line was patrolled, and nothing was found) and (2) an outage due to a tree falling into the line.
- A tree fell into the 60 kV transmission line outside of Challenge Substation.
- A tree fell into the Colgate-Alleghany 60 kV line.

These outages contributed 195.7 minutes to the system's overall January 3rd CAIDI performance.

1.2 Central Coast CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	January 3, 2017	227.2	16
	% Difference	63.4%	-56%

Table 26 – Central Coast Historical Performance

As indicated in Table 26, the Central Coast division CAIDI value of 227.2 minutes for the January 3rd major event was 63.4% higher than the 139.0 minute average of the prior 10 weather-related excludable major events.

The following three outages were the top contributing factors to the higher CAIDI value:

- Otter 1101 circuit – a failed overhead connector / splice.
- Hatton 1102 circuit – an outage of unknown cause. The line was patrolled, and nothing was found.
- Hatton 1102 circuit – a tree fell into the line.

These three outages contributed 87.1 minutes to the division's overall January 3rd CAIDI performance.

1.2 De Anza CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DE ANZA	December 11-12, 2014	192.7	13
DE ANZA	December 30, 2014	235.2	17
DE ANZA	February 6-8, 2015	104.8	20
DE ANZA	April 6, 2015	46.4	2
DE ANZA	June 8, 2015	395.8	9
DE ANZA	July 18-19, 2015	146.7	2
DE ANZA	December 13, 2015	71.7	8
DE ANZA	February 17, 2016	138.5	26
DE ANZA	March 5, 2016	141.4	34
DE ANZA	October 14, 2016	73.9	11
	Average of 10 excludable major events	137.6	14
DE ANZA	January 3, 2017	275.2	6
	% Difference	100.0%	-57%

Table 27 – De Anza Historical Performance

As indicated in Table 27, the De Anza division CAIDI value of 275.2 minutes for the January 3rd major event was 100.0% higher than the 137.6 minute average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- Saratoga 1107 circuit – a tree fell into the line.
- Saratoga 1107 circuit – a tree branch fell into the line.
- Hicks 1115 circuit – tree into line.
- Los Gatos 1106 circuit – a tree fell into the line.
- Stelling 1110 circuit – due to a pole fire.

These five outages contributed 132.2 minutes to the division’s overall January 3rd CAIDI performance.

1.3 Fresno CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
FRESNO	December 30, 2014	392.1	4
FRESNO	February 6-8, 2015	100.8	10
FRESNO	April 6, 2015	13.8	8
FRESNO	June 8, 2015	67.3	18
FRESNO	July 18-19, 2015	119.0	73
FRESNO	December 13, 2015	23.7	18
FRESNO	December 24, 2015	21.8	9
FRESNO	February 17, 2016	83.8	25
FRESNO	March 5, 2016	60.9	11
FRESNO	October 14, 2016	116.7	5
	Average of 10 excludable major events	98.2	23
FRESNO	January 3, 2017	153.2	5
	% Difference	56.0%	-78%

Table 28 – Fresno Historical Performance

As indicated in Table 28, the Fresno division CAIDI value of 153.2 minutes for the January 3rd major event was 56.0% higher than the 98.2 minute average of the prior 10 weather-related excludable major events.

The high CAIDI value was attributed to the following outage:

- Kingsburg 1108 circuit – a failed overhead connector / splice.

This outage contributed 52.4 minutes to the division's overall January 3rd CAIDI performance.

1.4 Humboldt CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
HUMBOLDT	December 30, 2014	205.0	6
HUMBOLDT	February 6-8, 2015	787.7	104
HUMBOLDT	April 6, 2015	433.8	12
HUMBOLDT	June 8, 2015	142.4	6
HUMBOLDT	July 18-19, 2015	252.9	9
HUMBOLDT	December 13, 2015	268.4	109
HUMBOLDT	December 24, 2015	726.8	50
HUMBOLDT	February 17, 2016	64.0	13
HUMBOLDT	March 5, 2016	222.9	53
HUMBOLDT	October 14, 2016	113.9	10
	Average of 10 excludable major events	606.8	45
HUMBOLDT	January 3, 2017	2,564.1	56
	% Difference	322.6%	26%

Table 29 – Humboldt Historical Performance

As indicated in Table 29, the Humboldt division CAIDI value of 2,564.1 minutes for the January 3rd major event was 322.6% higher than the 605.8 minute average of the prior 10 weather-related excludable major events.

Of the 56 outages experienced, 45 were trees falling into the lines. The following twelve outages contributed 1,041.8 minutes to the division's overall January 3rd CAIDI performance:

- Hoopa 1101 circuit – experienced several tree related outages, and seven were very impactful due to trees falling into the line.
- Willow Creek 1101 circuit – experienced two very impactful tree related outages when trees fell into the line.
- Willow Creek 1102 circuit – due to a tree falling into the line.
- Willow Creek 1103 circuit – due to an outage of unknown cause (the line was patrolled, and nothing was found), and a tree falling into the line.

1.5 Kern CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
KERN	December 30, 2014	20.0	6
KERN	February 6-8, 2015	67.9	4
KERN	April 6, 2015	66.9	3
KERN	June 8, 2015	325.4	8
KERN	July 18-19, 2015	163.9	44
KERN	December 13, 2015	144.1	5
KERN	December 24, 2015	119.0	1
KERN	February 17, 2016	271.6	4
KERN	March 5, 2016	271.7	4
KERN	October 14, 2016	18.4	4
	Average of 10 excludable major events	117.6	10
KERN	January 3, 2017	472.5	3
	% Difference	301.7%	-71%

Table 30 – Kern Historical Performance

As indicated in Table 30, the Kern division CAIDI value of 472.5 minutes for the January 3rd major event was 301.7% higher than the 117.6 minute average of the prior 10 weather-related excludable major events.

The following three outages were experienced on January 3rd resulting in the higher CAIDI value:

- Kern Power 2101 circuit – due to an underground transformer failure.
- Twisselman 2101 circuit – due to an outage of unknown cause (the line was patrolled, and nothing was found).
- Semitropic 1112 circuit – due to a car-pole accident.

These three outages contributed 472.5 minutes to the division's overall January 3rd CAIDI performance.

1.6 North Bay CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
NORTH BAY	December 30, 2014	183.5	39
NORTH BAY	February 6-8, 2015	254.1	41
NORTH BAY	April 6, 2015	124.0	1
NORTH BAY	June 8, 2015	245.7	8
NORTH BAY	July 18-19, 2015	161.4	3
NORTH BAY	December 13, 2015	146.4	20
NORTH BAY	December 24, 2015	230.2	4
NORTH BAY	February 17, 2016	102.9	19
NORTH BAY	March 5, 2016	224.6	46
NORTH BAY	October 14, 2016	180.7	24
	Average of 10 excludable major events	203.0	22
NORTH BAY	January 3, 2017	281.3	25
	% Difference	38.6%	12%

Table 31 – North Bay Historical Performance

As indicated in Table 31, the North Bay division CAIDI value of 281.3 minutes for the January 3rd major event was 38.6% higher than the 203.0 minute average of the prior 10 weather-related excludable major events.

The following three outages were the top contributing factors to the higher CAIDI value:

- Woodacre 1102 circuit – due to an overhead conductor failure.
- Alto 1125 circuit – due to a broken pole.
- Alto 1122 circuit – due to a failed underground switch.

These three outages contributed 105.2 minutes to the division's overall January 3rd CAIDI performance.

1.7 North Valley CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
NORTH VALLEY	December 30, 2014	444.9	57
NORTH VALLEY	February 6-8, 2015	964.9	71
NORTH VALLEY	April 6, 2015	205.5	30
NORTH VALLEY	June 8, 2015	110.1	7
NORTH VALLEY	July 18-19, 2015	119.6	4
NORTH VALLEY	December 13, 2015	157.9	86
NORTH VALLEY	December 24, 2015	102.3	7
NORTH VALLEY	February 17, 2016	69.2	7
NORTH VALLEY	March 5, 2016	289.6	84
NORTH VALLEY	October 14, 2016	203.1	47
	Average of 10 excludable major events	436.3	42
NORTH VALLEY	January 3, 2017	614.3	21
	% Difference	40.8%	-50%

Table 32 – North Valley Historical Performance

As indicated in Table 32, the North Valley division CAIDI value of 614.3 minutes for the January 3rd major event was 40.8% higher than the 436.3 minute average of the prior 10 weather-related excludable major events.

The following two outages were the top contributing factors to the higher CAIDI value:

- A tree fell into the 60 kV transmission line outside of Challenge Substation.
- Pit #3 2101 – due to a tree branch falling into the line.

These two outages contributed 197.8 minutes to the division's overall January 3rd CAIDI performance.

1.8 Sacramento CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SACRAMENTO	December 30, 2014	91.1	34
SACRAMENTO	February 6-8, 2015	132.0	19
SACRAMENTO	April 6, 2015	9.8	4
SACRAMENTO	June 8, 2015	178.9	18
SACRAMENTO	July 18-19, 2015	418.6	2
SACRAMENTO	December 13, 2015	142.3	58
SACRAMENTO	December 24, 2015	140.4	6
SACRAMENTO	February 17, 2016	115.9	23
SACRAMENTO	March 5, 2016	217.5	55
SACRAMENTO	October 14, 2016	126.4	32
	Average of 10 excludable major events	138.8	24
SACRAMENTO	January 3, 2017	212.4	18
	% Difference	53.1%	-25%

Table 33 – Sacramento Historical Performance

As indicated in Table 33, the Sacramento division CAIDI value of 212.4 minutes for the January 3rd major event was 53.1% higher than the 138.8 minute average of the prior 10 weather-related excludable major events.

The high CAIDI value was attributed to the following outage:

- West Sacramento 1108 – due to a tree branch falling into the line.

This outage contributed 152.0 minutes to the division's overall January 3rd CAIDI performance.

1.9 San Jose CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SAN JOSE	December 30, 2014	161.1	41
SAN JOSE	February 6-8, 2015	123.5	8
SAN JOSE	April 6, 2015	94.8	1
SAN JOSE	June 8, 2015	139.2	15
SAN JOSE	July 18-19, 2015	106.6	4
SAN JOSE	December 13, 2015	77.2	21
SAN JOSE	December 24, 2015	100.0	3
SAN JOSE	February 17, 2016	79.3	14
SAN JOSE	March 5, 2016	162.4	10
SAN JOSE	October 14, 2016	124.3	6
	Average of 10 excludable major events	134.9	11
SAN JOSE	January 3, 2017	379.8	7
	% Difference	181.5%	-36%

Table 34 – San Jose Historical Performance

As indicated in Table 34, the San Jose division CAIDI value of 379.8 minutes for the January 3rd major event was 181.5% higher than the 134.9 minute average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- Llagas 2101 – due to a failed jumper.
- Hicks 1111 – due to palm frond falling into the line.
- Milpitas 2110 – due to a failed overhead conductor.
- Morgan Hill 2111 – due to a tree falling into the line.
- Llagas 2103 – due to a failed underground cable.

These outages contributed 302.0 minutes to the division's overall January 3rd CAIDI performance.

1.10 Sierra CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SIERRA	December 30, 2014	339.2	103
SIERRA	February 6-8, 2015	489.0	40
SIERRA	April 6, 2015	48.6	2
SIERRA	June 8, 2015	188.9	5
SIERRA	July 18-19, 2015	12.4	3
SIERRA	December 13, 2015	139.2	27
SIERRA	December 24, 2015	293.3	8
SIERRA	February 17, 2016	280.6	76
SIERRA	March 5, 2016	187.8	53
SIERRA	October 14, 2016	113.3	15
	Average of 10 excludable major events	301.2	32
SIERRA	January 3, 2017	669.0	33
	% Difference	122.1%	3%

Table 35 – Sierra Historical Performance

As indicated in Table 35, the Sierra division CAIDI value of 669.0 minutes for the January 3rd major event was 122.1% higher than the 301.2 minute average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- Pike City 1101 – due to a tree falling into the line (fuse outage).
- A tree fell into the Colgate-Alleghany 60 kV line.
- Brunswick 1105 – due to a tree branch falling into the line.
- Pike City 1101 – due to a tree falling into the line (recloser outage).
- Columbia Hill 1101 – due to a tree falling into the line.

These outages contributed 384.6 minutes to the division's overall January 3rd CAIDI performance.

2. January 8-11, 2017 Major Event Days

The second major event was from January 8-11, 2017, where another strong winter-storm moved through the service area producing heavy rain showers, with strong gusty south winds, and snow in the mountains.

Table 36 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(January 8-11, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	January 8-11, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	337.9	149.9%	Yes
CENTRAL COAST	139.0	435.0	312.9%	Yes
DE ANZA	137.6	301.4	219.0%	Yes
DIABLO	126.9	174.7	137.7%	Yes
EAST BAY	140.1	142.9	102.0%	NO
FRESNO	98.2	177.1	180.3%	Yes
HUMBOLDT	606.8	1093.7	180.3%	Yes
KERN	117.6	55.9	47.5%	NO
LOS PADRES	345.3	127.3	36.9%	NO
MISSION	138.5	316.4	228.5%	Yes
NORTH BAY	203.0	265.9	131.0%	Yes
NORTH VALLEY	436.3	525.0	120.3%	NO
PENINSULA	123.7	183.5	148.3%	Yes
SACRAMENTO	138.8	178.9	128.9%	Yes
SAN FRANCISCO	258.7	109.1	42.2%	NO
SAN JOSE	134.9	126.5	93.7%	NO
SIERRA	301.2	619.6	205.7%	Yes
SONOMA	190.5	461.0	242.0%	Yes
STOCKTON	188.1	210.4	111.9%	NO
YOSEMITE	170.0	261.5	153.8%	Yes

Table 36 – January 8-11, 2017 CAIDI Performance

2.1 System CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SYSTEM	December 30, 2014	202.6	643
SYSTEM	February 6-8, 2015	395.4	540
SYSTEM	April 6, 2015	193.5	85
SYSTEM	June 8, 2015	122.6	182
SYSTEM	July 18-19, 2015	169.4	282
SYSTEM	December 13, 2015	127.7	523
SYSTEM	December 24, 2015	344.5	135
SYSTEM	February 17, 2016	144.6	380
SYSTEM	March 5, 2016	176.4	620
SYSTEM	October 14, 2016	152.3	326
	Average of 10 excludable major events	225.4	391
SYSTEM	January 8-11, 2017	337.9	549
	% Difference	49.9%	40%

Table 37 – System Historical Performance

As indicated in Table 37, the system CAIDI value of 337.9 minutes for the January 8-11, 2017 major event days was 49.9% higher than the 225.4 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day for January 8th -11th was 40% higher than the average of the corresponding prior 10 excludable major events.

The 549 sustained outages per day average is higher than the 391 outages / day average of the ten prior major events and illustrate the intensity of the January 8th-11th storm event.

The following seven outages were the top contributing factors to the higher CAIDI value:

- Big River – Fort Bragg 60 kV line - multiple overhead lines downed due to the storm.
- Caribou – Palmero 115 kV line due to a broken insulator and a tree falling through the line.
- Challenge 60 kV line due to failed overhead equipment.
- Fort Ross – Gualala 60 kV line of unknown cause (line was patrolled and nothing was found).
- West Point – Valley Springs 60 kV line due to a broken pole.
- Big Basin 1102 circuit due to a tree falling into the line.
- Echo Summit 1101 due to a broken cross-arm.

These seven outages contributed 35.9 minutes to the overall January 8-11, 2017 CAIDI performance.

2.2 Central Coast Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	January 8-11, 2017	435.0	58
	% Difference	212.9%	58%

Table 38 – Central Coast Division Historical Performance

As indicated in Table 38, the Central Coast Division CAIDI value of 435.0 minutes for the January 8-11, 2017 major event days was 212.9% higher than the 139.0 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 58 for January 8th -11th was 58% higher than the average of the corresponding prior 10 excludable major events of 36. On the first day of this storm event, the division experienced 91 outages, which is 153% higher than the average of the prior 10 weather-related excludable major events of 36. This illustrates the intensity of the January 8th-11th storm event.

The following seven outages were the top contributing factors to the higher CAIDI value:

- Big Basin 1102 circuit - due to a tree falling into the line.
- Rob Roy 2104 circuit – due to a tree falling into the line.
- Camp Evers 2104 – due to a mudslide.
- Big Basin 1101 – due to a tree falling into the line on January 8th and another tree falling into the line on January 10th.
- Camp Evers 2105 – due to a tree falling into the line.
- Otter 1102 – due to a mudslide.

These seven outages contributed 151.8 minutes to the overall January 8-11, 2017 CAIDI performance.

2.3 De Anza Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DE ANZA	December 11-12, 2014	192.7	13
DE ANZA	December 30, 2014	235.2	17
DE ANZA	February 6-8, 2015	104.8	20
DE ANZA	April 6, 2015	46.4	2
DE ANZA	June 8, 2015	395.8	9
DE ANZA	July 18-19, 2015	146.7	2
DE ANZA	December 13, 2015	71.7	8
DE ANZA	February 17, 2016	138.5	26
DE ANZA	March 5, 2016	141.4	34
DE ANZA	October 14, 2016	73.9	11
	Average of 10 excludable major events	137.6	14
DE ANZA	January 8-11, 2017	301.4	19
	% Difference	119.0%	33%

Table 39 – De Anza Division Historical Performance

As indicated in Table 39, the De Anza Division CAIDI value of 301.4 minutes for the January 8-11, 2017 major event days was 119.0% higher than the 137.6 minute average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 19 for January 8th -11th was 33% higher than the average of the corresponding prior 10 excludable major events of 14. On the first day of this storm event, the division experienced 36 outages, which is 157% higher than the average of the prior 10 weather-related excludable major events of 14. This illustrates the intensity of the January 8th-11th storm event.

The following six outages were the top contributing factors to the higher CAIDI value:

- Camp Evers 2106 circuit – due to a tree branch falling into the line.
- Los Gatos 1107 circuit (three outages) – (1) due to failed overhead conductor, (2) a tree falling into the line, and (3) due to a failed overhead jumper.
- Los Gatos 1106 circuit (two outages) – (1) due to a tree falling into the line and (2) a land slide.

These six outages contributed 106.1 minutes to the overall January 8-11, 2017 CAIDI performance.

2.4 Diablo Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DIABLO	December 11-12, 2014	199.1	20
DIABLO	December 30, 2014	183.0	47
DIABLO	February 6-8, 2015	87.5	16
DIABLO	April 6, 2015	112.0	1
DIABLO	June 8, 2015	104.5	23
DIABLO	July 18-19, 2015	144.8	3
DIABLO	December 13, 2015	31.6	7
DIABLO	February 17, 2016	81.7	9
DIABLO	March 5, 2016	247.2	18
DIABLO	October 14, 2016	176.3	12
	Average of 10 excludable major events	126.9	15
DIABLO	January 8-11, 2017	174.7	14
	% Difference	37.7%	-7%

Table 40 – Diablo Division Historical Performance

As indicated in Table 40, the Diablo Division CAIDI value of 174.7 minutes for the January 8-11, 2017 major event days was 37.7% higher than the 126.9 minutes average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- Lakewood 2107 circuit – due to a tree falling into the line.
- Moraga 1104 circuit – due to a tree falling into the line.
- Tassajara 2107 – due to a failed underground elbow.
- Kirker 2107 circuit – due to a failed underground elbow.
- Tassajara 2103 circuit – due to a failed underground elbow.

These outages contributed 46.0 minutes to the January 8-11, 2017 overall CAIDI performance.

2.5 Fresno Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
FRESNO	December 30, 2014	392.1	4
FRESNO	February 6-8, 2015	100.8	10
FRESNO	April 6, 2015	13.8	8
FRESNO	June 8, 2015	67.3	18
FRESNO	July 18-19, 2015	119.0	73
FRESNO	December 13, 2015	23.7	18
FRESNO	December 24, 2015	21.8	9
FRESNO	February 17, 2016	83.8	25
FRESNO	March 5, 2016	60.9	11
FRESNO	October 14, 2016	116.7	5
	Average of 10 excludable major events	98.2	23
FRESNO	January 8-11, 2017	177.1	12
	% Difference	80.3%	-49%

Table 41 – Fresno Division Historical Performance

As indicated in Table 41, the Fresno Division CAIDI value of 177.1 minutes for the January 8-11, 2017 major event days was 80.3% higher than the 98.2 minute average of the prior 10 weather-related excludable major events.

The following two outages were the top contributing factors to the higher CAIDI value:

- Stone Corral 1108 circuit – due to a car pole accident.
- Dunlap 1103 circuit – due to a tree falling into the line.

These outages contributed 81.2 minutes to the January 8-11, 2017 overall CAIDI performance.

2.6 Humboldt Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
HUMBOLDT	December 30, 2014	205.0	6
HUMBOLDT	February 6-8, 2015	787.7	104
HUMBOLDT	April 6, 2015	433.8	12
HUMBOLDT	June 8, 2015	142.4	6
HUMBOLDT	July 18-19, 2015	252.9	9
HUMBOLDT	December 13, 2015	268.4	109
HUMBOLDT	December 24, 2015	726.8	50
HUMBOLDT	February 17, 2016	64.0	13
HUMBOLDT	March 5, 2016	222.9	53
HUMBOLDT	October 14, 2016	113.9	10
	Average of 10 excludable major events	606.8	45
HUMBOLDT	January 8-11, 2017	1,093.7	66
	% Difference	80.3%	48%

Table 42 – Humboldt Division Historical Performance

As indicated in Table 42, the Humboldt Division CAIDI value of 1,093.7 minutes for the January 8-11, 2017 major event days was 80.3% higher than the 606.8 minute average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 66 for January 8th -11th was 48% higher than the average of the corresponding prior 10 excludable major events of 45. On the first day of this storm event, the division experienced 140 outages, which is 211% higher than the average of the prior 10 weather-related excludable major events of 45. This illustrates the intensity of the January 8th-11th storm event.

The following eight outages were the top contributing factors to the higher CAIDI value:

- Big River 1101 circuit – due to a tree falling into the line.
- Garberville 1101 circuit – due to a tree falling into the line.
- Garberville 1102 circuit – due to a tree branch falling into the line.
- Fort Bragg 1102 circuit – due to a tree falling into the line.
- Fruitland 1142 circuit – due to a tree branch falling into the line.
- Big River – Fort Bragg 60 kV line – multiple overhead lines downed by the storm.
- Rio Dell 1102 circuit – heavy rain fall washed out a pole.
- Laytonville 1102 circuit – due to a tree falling into the line.

These outages contributed 289.0 minutes to the January 8-11, 2017 overall CAIDI performance.

2.7 Mission Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
MISSION	December 30, 2014	135.7	31.0
MISSION	February 6-8, 2015	51.5	4
MISSION	April 6, 2015	74.3	2
MISSION	June 8, 2015	159.7	12
MISSION	July 18-19, 2015	250.2	2
MISSION	December 13, 2015	176.0	6
MISSION	December 24, 2015	165.5	2
MISSION	February 17, 2016	131.3	8
MISSION	March 5, 2016	209.3	6
MISSION	October 14, 2016	174.5	29
	Average of 10 excludable major events	138.5	9
MISSION	January 8-11, 2017	316.4	5
	% Difference	128.5%	-39%

Table 43 – Mission Division Historical Performance

As indicated in Table 43, the Mission Division CAIDI value of 316.4 minutes for the January 8-11, 2017 major event days was 128.5% higher than the 138.5 minute average of the prior 10 weather-related excludable major events.

The following eight outages were the top contributing factors to the higher CAIDI value:

- San Ramon 2108 circuit – due to a tree branch falling into the line.
- Castro Valley 1109 circuit – due to a tree branch falling into the line.
- Fremont 1104 circuit – due to a tree falling into the line.
- Castro Valley 1108 circuit – due to a tree falling into the line.
- Castro Valley 1105 circuit – due to a palm frond falling into the line.
- Vasco 1101 circuit – unknown cause.
- Las Positas 2110 circuit – due to a failed underground switch.
- Cayetano 2109 circuit – unknown cause.

These outages contributed 194.7 minutes to the January 8-11, 2017 overall CAIDI performance.

2.8 North Bay Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
NORTH BAY	December 30, 2014	183.5	39
NORTH BAY	February 6-8, 2015	254.1	41
NORTH BAY	April 6, 2015	124.0	1
NORTH BAY	June 8, 2015	245.7	8
NORTH BAY	July 18-19, 2015	161.4	3
NORTH BAY	December 13, 2015	146.4	20
NORTH BAY	December 24, 2015	230.2	4
NORTH BAY	February 17, 2016	102.9	19
NORTH BAY	March 5, 2016	224.6	46
NORTH BAY	October 14, 2016	180.7	24
	Average of 10 excludable major events	203.0	22
NORTH BAY	January 8-11, 2017	265.9	50
	% Difference	31.0%	123%

Table 44 – North Bay Division Historical Performance

As indicated in Table 44, the North Bay Division CAIDI value of 265.9 minutes for the January 8-11, 2017 major event days was 31.0% higher than the 203.0 minute average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 50 for January 8th -11th was 123% higher than the average of the corresponding prior 10 excludable major events of 22. On the first day of this storm event, the division experienced 90 outages, which is 309% higher than the average of the prior 10 weather-related excludable major events of 22. This illustrates the intensity of the January 8th-11th storm event.

The following five outages were the top contributing factors to the higher CAIDI value:

- Woodacre 1102 circuit (two outages) – due to trees falling into the line.
- Greenbrae 1103 circuit – due to a failed overhead jumper.
- Silverado 2105 circuit – due to a tree branch falling on the line.
- Calistoga 1101 circuit – due to a failed overhead conductor.

These outages contributed 32.6 minutes to the January 8-11, 2017 overall CAIDI performance.

2.9 Peninsula Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
PENINSULA	December 30, 2014	113.4	23
PENINSULA	February 6-8, 2015	158.1	30
PENINSULA	April 6, 2015	216.0	1
PENINSULA	June 8, 2015	69.5	5
PENINSULA	July 18-19, 2015	42.0	3
PENINSULA	December 13, 2015	119.6	20
PENINSULA	December 24, 2015	448.7	3
PENINSULA	February 17, 2016	104.2	17
PENINSULA	March 5, 2016	139.9	34
PENINSULA	October 14, 2016	67.8	24
	Average of 10 excludable major events	123.7	17
PENINSULA	January 8-11, 2017	183.5	38
	% Difference	48.3%	122%

Table 45 – Peninsula Division Historical Performance

As indicated in Table 45, the Peninsula Division CAIDI value of 183.5 minutes for the January 8-11, 2017 major event days was 48.3% higher than the 123.7 minute average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 38 for January 8th -11th was 122% higher than the average of the corresponding prior 10 excludable major events of 17. On the first day of this storm event, the division experienced 73 outages, which is 329% higher than the average of the prior 10 weather-related excludable major events of 17. This illustrates the intensity of the January 8th-11th storm event.

The following seven outages were the top contributing factors to the higher CAIDI value:

- Daly City 1104 circuit – due to a tree falling into the line.
- Half Moon Bay 1101 circuit – due to a failed broken pole.
- Serramonte 1103 circuit – due to a failed overhead connector / splice.
- Substation H 402 circuit – outage of unknown cause.
- Half Moon Bay 1102 circuit – due to a tree falling on the line.
- Daly City 1102 circuit – due to a tree growing into the line.
- Woodside 1101 circuit – due to a tree falling into the line.

These outages contributed 25.7 minutes to the January 8-11, 2017 overall CAIDI performance.

2.10 Sacramento Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SACRAMENTO	December 30, 2014	91.1	34
SACRAMENTO	February 6-8, 2015	132.0	19
SACRAMENTO	April 6, 2015	9.8	4
SACRAMENTO	June 8, 2015	178.9	18
SACRAMENTO	July 18-19, 2015	418.6	2
SACRAMENTO	December 13, 2015	142.3	58
SACRAMENTO	December 24, 2015	140.4	6
SACRAMENTO	February 17, 2016	115.9	23
SACRAMENTO	March 5, 2016	217.5	55
SACRAMENTO	October 14, 2016	126.4	32
	Average of 10 excludable major events	138.8	24
SACRAMENTO	January 8-11, 2017	178.9	18
	% Difference	28.9%	-27%

Table 46 – Sacramento Division Historical Performance

As indicated in Table 46, the Sacramento Division CAIDI value of 178.9 minutes for the January 8-11, 2017 major event days was 28.9% higher than the 138.8 minute average of the prior 10 weather-related excludable major events.

The higher CAIDI value was attributed to the following outage:

- Madison 2101 circuit – due to a broken pole.

This outage contributed 48.9 minutes to the January 8-11, 2017 overall CAIDI performance.

2.11 Sierra Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SIERRA	December 30, 2014	339.2	103
SIERRA	February 6-8, 2015	489.0	40
SIERRA	April 6, 2015	48.6	2
SIERRA	June 8, 2015	188.9	5
SIERRA	July 18-19, 2015	12.4	3
SIERRA	December 13, 2015	139.2	27
SIERRA	December 24, 2015	293.3	8
SIERRA	February 17, 2016	280.6	76
SIERRA	March 5, 2016	187.8	53
SIERRA	October 14, 2016	113.3	15
	Average of 10 excludable major events	301.2	32
SIERRA	January 8-11, 2017	619.6	57
	% Difference	105.7%	79%

Table 47 – Sierra Division Historical Performance

As indicated in Table 47, the Sierra Division CAIDI value of 619.6 minutes for the January 8-11, 2017 major event days was 105.7% higher than the 301.2 minute average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 57 for January 8th -11th was 79% higher than the average of the corresponding prior 10 excludable major events of 32. On the first day of this storm event, the division experienced 91 outages, which is 184% higher than the average of the prior 10 weather-related excludable major events of 32. This illustrates the intensity of the January 8th-11th storm event.

The following six outages were the top contributing factors to the higher CAIDI value:

- Spaulding – Summit 60 kV line due to a failed overhead jumper.
- Brunswick 1105 – due to a tree falling into the line.
- Placerville 1106 circuit – due to a tree falling into the line.
- Echo Summit 1101 due to a broken cross-arm.
- Alleghany 1101 circuit – due to failed overhead line.
- Columbia Hill 1101 circuit – due to a tree falling into the line.

This outage contributed 221.4 minutes to the January 8-11, 2017 overall CAIDI performance.

2.12 Sonoma Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SONOMA	December 30, 2014	84.9	45
SONOMA	February 6-8, 2015	248.5	65
SONOMA	April 6, 2015	117.8	3
SONOMA	June 8, 2015	194.2	7
SONOMA	July 18-19, 2015	71.2	4
SONOMA	December 13, 2015	230.6	34
SONOMA	December 24, 2015	139.8	5
SONOMA	February 17, 2016	55.9	3
SONOMA	March 5, 2016	168.2	53
SONOMA	October 14, 2016	140.1	9
	Average of 10 excludable major events	190.5	28
SONOMA	January 8-11, 2017	461.0	72
	% Difference	142.0%	157%

Table 48 – Sonoma Division Historical Performance

As indicated in Table 48, the Sonoma Division CAIDI value of 461.0 minutes for the January 8-11, 2017 major event days was 142.0% higher than the 190.5 minute average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 72 for January 8^{th} -11^{th} was 157% higher than the average of the corresponding prior 10 excludable major events of 28. On the first day of this storm event, the division experienced 124 outages, which is 343% higher than the average of the prior 10 weather-related excludable major events of 28. This illustrates the intensity of the January 8^{th}-11^{th} storm event.

The following six outages were the top contributing factors to the higher CAIDI value:

- Molino 1102 circuit – due to a tree falling into the line (January 8^{th}).
- Fort Ross – Gualala 60 kV of unknown cause (line was patrolled and nothing was found).
- Santa Rosa A 1104 circuit – due to a tree branch falling into the line.
- Molino 1102 circuit – due to a tree falling into the line (January 10^{th}).
- Molino 1101 circuit (two outages) – due to (1) a tree falling into the line and (2) a tree branch falling into the line.

This outage contributed 65.7 minutes to the January 8-11, 2017 overall CAIDI performance.

2.13 Yosemite Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
YOSEMITE	December 30, 2014	447.5	23
YOSEMITE	February 6-8, 2015	128.0	20
YOSEMITE	April 6, 2015	111.2	6
YOSEMITE	June 8, 2015	101.4	13
YOSEMITE	July 18-19, 2015	97.2	9
YOSEMITE	December 13, 2015	110.8	15
YOSEMITE	December 24, 2015	75.9	14
YOSEMITE	February 17, 2016	118.1	29
YOSEMITE	March 5, 2016	132.4	18
YOSEMITE	October 14, 2016	118.7	10
	Average of 10 excludable major events	170.0	16
YOSEMITE	January 8-11, 2017	261.5	24
	% Difference	53.8%	51%

Table 49 – Yosemite Division Historical Performance

As indicated in Table 49, the Yosemite Division CAIDI value of 261.5 minutes for the January 8-11, 2017 major event days was 53.8% higher than the 170.0 minute average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 24 for January 8th -11th was 51% higher than the average of the corresponding prior 10 excludable major events of 16. On the first day of this storm event, the division experienced 29 outages, which is 81% higher than the average of the prior 10 weather-related excludable major events of 16. This illustrates the intensity of the January 8th-11th storm event.

The following seven outages were the top contributing factors to the higher CAIDI value:

- Curtis 1701 circuit – due to a tree branch falling into the line (January 8th).
- Miwuk 1701 circuit (two outages) – due to (1) a tree branch falling into the line and (2) a tree falling on the line.
- Curtis 1704 circuit – due to a tree falling into the line.
- Miwuk 1702 circuit – due to a tree branch falling into the line.
- Spring Gap 1701 – due to a tree falling into the line.
- Curtis 1703 circuit – due to a tree falling into the line.

This outage contributed 68.6 minutes to the January 8-11, 2017 overall CAIDI performance.

3. January 18-23, 2017 Major Event Days

The third major event was from January 18-23, 2017 caused by a series of storms impacting northern and central California. These storms brought heavy rain, mountain snow, and strong south winds. Table 50 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(January 18-23, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	January 18-23, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	266.4	118.2%	Yes
CENTRAL COAST	139.0	219.4	157.8%	Yes
DE ANZA	137.6	178.8	129.9%	Yes
DIABLO	126.9	88.4	69.7%	NO
EAST BAY	140.1	101.2	72.2%	NO
FRESNO	98.2	235.2	239.5%	Yes
HUMBOLDT	606.8	329.6	54.3%	NO
KERN	117.6	242.9	206.5%	Yes
LOS PADRES	345.3	213.3	61.8%	NO
MISSION	138.5	103.4	74.7%	NO
NORTH BAY	203.0	168.4	83.0%	NO
NORTH VALLEY	436.3	283.0	64.9%	NO
PENINSULA	123.7	114.0	92.1%	NO
SACRAMENTO	138.8	319.5	230.2%	Yes
SAN FRANCISCO	258.7	85.2	32.9%	NO
SAN JOSE	134.9	131.8	97.7%	NO
SIERRA	301.2	414.9	137.7%	Yes
SONOMA	190.5	153.2	80.4%	NO
STOCKTON	188.1	467.0	248.2%	Yes
YOSEMITE	170.0	429.8	252.8%	Yes

Table 50 – January 18-23, 2017 CAIDI Performance

3.1 System CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SYSTEM	December 30, 2014	202.6	643
SYSTEM	February 6-8, 2015	395.4	540
SYSTEM	April 6, 2015	193.5	85
SYSTEM	June 8, 2015	122.6	182
SYSTEM	July 18-19, 2015	169.4	282
SYSTEM	December 13, 2015	127.7	523
SYSTEM	December 24, 2015	344.5	135
SYSTEM	February 17, 2016	144.6	380
SYSTEM	March 5, 2016	176.4	620
SYSTEM	October 14, 2016	152.3	326
	Average of 10 excludable major events	225.4	391
SYSTEM	January 18-23, 2017	266.4	448
	% Difference	18.2%	15%

Table 51 – System Historical Performance

As indicated in Table 51, the system CAIDI value of 266.4 minutes for the January 18-23, 2017 major event days was 18.2% higher than the 225.4 minutes average of the prior 10 weather-related excludable major events.

The following seven outages were the top contributing factors to the higher CAIDI value:

- Challenge 1101 circuit – due to a tree falling into the line.
- Grand Island 2226 circuit – due to a failed overhead conductor.
- Stanislaus 1702 circuit – due to two outages relating to trees falling into the line.
- Stanislaus 1702 circuit – due to a failed insulator.
- Miwuk 2107 circuit – due to tree bark falling into the line.
- Spring Gap 1701 – due to a tree falling into the line.

These seven outages contributed 22.7 minutes to the January 18-23, 2017 overall CAIDI performance.

3.2 Central Coast Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	January 18-23, 2017	219.4	50
	% Difference	57.8%	38%

Table 52 – Central Coast Division Historical Performance

As indicated in Table 52, the Central Coast Division CAIDI value of 219.4 minutes for the January 18-23, 2017 major event days was 57.8% higher than the 139.0 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 50 for January 18-23, 2017 was 38% higher than the average of the corresponding prior 10 excludable major events of 36. As the storms moved through the area, the number of outages increased from 49 the first day to 88 the third day and to a maximum of 101 on the fifth day. This illustrates the intensity of the January 18th-23rd storm event.

The following five outages were the top contributing factors to the higher CAIDI value:

- Rob Roy 2104 circuit – due to a tree falling into the line.
- Prunedale 1110 circuit – due to a tree falling into the line.
- Viejo 2203 circuit – due to a failed jumper.
- Camp Evers 2105 circuit – due to a mudslide.
- Dolan Road 1101 circuit – due to a tree falling into the line.

These five outages contributed 36.3 minutes to the January 18-23, 2017 overall CAIDI performance.

3.3 De Anza Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DE ANZA	December 11-12, 2014	192.7	13
DE ANZA	December 30, 2014	235.2	17
DE ANZA	February 6-8, 2015	104.8	20
DE ANZA	April 6, 2015	46.4	2
DE ANZA	June 8, 2015	395.8	9
DE ANZA	July 18-19, 2015	146.7	2
DE ANZA	December 13, 2015	71.7	8
DE ANZA	February 17, 2016	138.5	26
DE ANZA	March 5, 2016	141.4	34
DE ANZA	October 14, 2016	73.9	11
	Average of 10 excludable major events	137.6	14
DE ANZA	January 18-23, 2017	178.8	6
	% Difference	29.9%	-56%

Table 53 – De Anza Division Historical Performance

As indicated in Table 53, the De Anza Division CAIDI value of 178.8 minutes for the January 18-23, 2017 major event days was 29.9% higher than the 137.6 minutes average of the prior 10 weather-related excludable major events.

The following three outages were the top contributing factors to the higher CAIDI value:

- El Patio 1108 circuit – due to two outages relating to tree branches falling into the line.
- Wolfe 1104 circuit – due to a failed overhead conductor.

These three outages contributed 38.1 minutes to the January 18-23, 2017 overall CAIDI performance.

3.4 Fresno Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
FRESNO	December 30, 2014	392.1	4
FRESNO	February 6-8, 2015	100.8	10
FRESNO	April 6, 2015	13.8	8
FRESNO	June 8, 2015	67.3	18
FRESNO	July 18-19, 2015	119.0	73
FRESNO	December 13, 2015	23.7	18
FRESNO	December 24, 2015	21.8	9
FRESNO	February 17, 2016	83.8	25
FRESNO	March 5, 2016	60.9	11
FRESNO	October 14, 2016	116.7	5
	Average of 10 excludable major events	98.2	23
FRESNO	January 18-23, 2017	235.2	13
	% Difference	139.5%	-44%

Table 54 – Fresno Division Historical Performance

As indicated in Table 54, the Fresno Division CAIDI value of 235.2 minutes for the January 18-23, 2017 major event days was 139.5% higher than the 98.2 minutes average of the prior 10 weather-related excludable major events.

The following four outages were the top contributing factors to the higher CAIDI value:

- Dunlap 1103 circuit (two outages) – due to (1) a tree branch falling into the line and (2) a tree falling into the line.
- Reedley 1101 circuit – due to a failed underground transformer.
- Dunlap 1102 circuit – due a failed overhead conductor caused by ice / snow on the wire.

These four outages contributed 121.6 minutes to the January 18-23, 2017 overall CAIDI performance.

3.5 Kern Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
KERN	December 30, 2014	20.0	6
KERN	February 6-8, 2015	67.9	4
KERN	April 6, 2015	66.9	3
KERN	June 8, 2015	325.4	8
KERN	July 18-19, 2015	163.9	44
KERN	December 13, 2015	144.1	5
KERN	December 24, 2015	119.0	1
KERN	February 17, 2016	271.6	4
KERN	March 5, 2016	271.7	4
KERN	October 14, 2016	18.4	4
	Average of 10 excludable major events	117.6	10
KERN	January 18-23, 2017	242.9	16
	% Difference	106.5%	58%

Table 55 – Kern Division Historical Performance

As indicated in Table 55, the Kern Division CAIDI value of 242.9 minutes for the January 18-23, 2017 major event days was 106.5% higher than the 117.6 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 16 for January 18-23, 2017 was 58% higher than the average of the corresponding prior 10 excludable major events of 10. As the storms moved through the area, the number of outages reached 68 on the fifth day (580% of the 10-year average). This illustrates the intensity of the January 18^{th}-23^{rd} storm event.

The following four outages were the top contributing factors to the higher CAIDI value:

- Taft 1104 circuit – due to a failed overhead conductor.
- Panama 2102 circuit – due to a failed overhead conductor.
- Magunden 1101 circuit – due a broken pole.
- Calwater 1102 circuit – due to a failed switch on the Westpark-Magunden 115 kV line.

These four outages contributed 44.2 minutes to the January 18-23, 2017 overall CAIDI performance.

3.6 Sacramento Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SACRAMENTO	December 30, 2014	91.1	34
SACRAMENTO	February 6-8, 2015	132.0	19
SACRAMENTO	April 6, 2015	9.8	4
SACRAMENTO	June 8, 2015	178.9	18
SACRAMENTO	July 18-19, 2015	418.6	2
SACRAMENTO	December 13, 2015	142.3	58
SACRAMENTO	December 24, 2015	140.4	6
SACRAMENTO	February 17, 2016	115.9	23
SACRAMENTO	March 5, 2016	217.5	55
SACRAMENTO	October 14, 2016	126.4	32
	Average of 10 excludable major events	138.8	24
SACRAMENTO	January 18-23, 2017	319.5	55
	% Difference	130.2%	126%

Table 56 – Sacramento Division Historical Performance

As indicated in Table 56, the Sacramento Division CAIDI value of 319.5 minutes for the January 18-23, 2017 major event days was 130.2% higher than the 138.8 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 55 for January 18-23, 2017 was 126% higher than the average of the corresponding prior 10 excludable major events of 24. On the first day of the storm, the number of outages reached 124 (415% of the 10-year average). This illustrates the intensity of the January 18^{th}-23^{rd} storm event.

The following five outages were the top contributing factors to the higher CAIDI value:

- Deepwater 1107 circuit – due to a failed overhead conductor.
- Grand Island 2227 circuit – due to a broken pole.
- Davis 1112 circuit – of unknown cause (the line was patrolled and nothing was found).
- Grand Island 2226 circuit – due to a failed overhead conductor.
- Davis 1108 circuit – due to a tree falling into the line.

These five outages contributed 62.9 minutes to the January 18-23, 2017 overall CAIDI performance.

3.7 Sierra Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SIERRA	December 30, 2014	339.2	103
SIERRA	February 6-8, 2015	489.0	40
SIERRA	April 6, 2015	48.6	2
SIERRA	June 8, 2015	188.9	5
SIERRA	July 18-19, 2015	12.4	3
SIERRA	December 13, 2015	139.2	27
SIERRA	December 24, 2015	293.3	8
SIERRA	February 17, 2016	280.6	76
SIERRA	March 5, 2016	187.8	53
SIERRA	October 14, 2016	113.3	15
	Average of 10 excludable major events	301.2	32
SIERRA	January 18-23, 2017	414.9	43
	% Difference	37.7%	33%

Table 57 – Sierra Division Historical Performance

As indicated in Table 57, the Sierra Division CAIDI value of 414.9 minutes for the January 18-23, 2017 major event days was 37.7% higher than the 301.2 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 43 for January 18-23, 2017 was 33% higher than the average of the corresponding prior 10 excludable major events of 32. The first day of the storm produced 41 sustained outages while the last day experienced the most with 82 outages. This illustrates the intensity of the January 18th-23rd storm event.

The following six outages were the top contributing factors to the higher CAIDI value:

- El Dorado 2101 circuit – due to a failed overhead conductor.
- Colgate - Alleghany 60 kV line – due to a tree falling into the line.
- Spaulding - Summit 60 kV Line – of unknown cause (the line was patrolled and nothing was found).
- Apple Hill 2102 circuit – due to a tree falling into the line.
- Tamarack Substation – due to a tree falling into the transmission line outside of the substation.
- Echo Summit 1101 circuit – due to a broken cross-arm.

These six outages contributed 77.1 minutes to the January 18-23, 2017 overall CAIDI performance.

3.8 Stockton Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
STOCKTON	December 30, 2014	288.3	37
STOCKTON	February 6-8, 2015	135.7	20
STOCKTON	April 6, 2015	43.7	5
STOCKTON	June 8, 2015	132.6	12
STOCKTON	July 18-19, 2015	173.8	6
STOCKTON	December 13, 2015	146.7	27
STOCKTON	December 24, 2015	261.1	16
STOCKTON	February 17, 2016	175.0	29
STOCKTON	March 5, 2016	210.2	33
STOCKTON	October 14, 2016	132.1	31
	Average of 10 excludable major events	188.1	20
STOCKTON	January 18-23, 2017	467.0	52
	% Difference	148.2%	156%

Table 58 – Stockton Division Historical Performance

As indicated in Table 58, the Stockton Division CAIDI value of 467.0 minutes for the January 18-23, 2017 major event days was 148.2% higher than the 188.1 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 52 for January 18-23, 2017 was 156% higher than the average of the corresponding prior 10 excludable major events of 20. The first day of the storm produced 88 sustained outages while the last day experienced 35 outages. This illustrates the intensity of the January 18th-23rd storm event.

The following nine outages were the top contributing factors to the higher CAIDI value:

- Stanislaus 1702 circuit – experienced several outages including five due to trees falling into the line and one due to a broken insulator.
- West Point 1101 circuit – due to a tree branch falling into the line.
- Salt Springs 2102 circuit – due to a failed overhead conductor.
- Stanislaus 1701 circuit – due to a broken insulator.

These nine outages contributed 155.9 minutes to the January 18-23, 2017 overall CAIDI performance.

3.9 Yosemite Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
YOSEMITE	December 30, 2014	447.5	23
YOSEMITE	February 6-8, 2015	128.0	20
YOSEMITE	April 6, 2015	111.2	6
YOSEMITE	June 8, 2015	101.4	13
YOSEMITE	July 18-19, 2015	97.2	9
YOSEMITE	December 13, 2015	110.8	15
YOSEMITE	December 24, 2015	75.9	14
YOSEMITE	February 17, 2016	118.1	29
YOSEMITE	March 5, 2016	132.4	18
YOSEMITE	October 14, 2016	118.7	10
	Average of 10 excludable major events	170.0	16
YOSEMITE	January 18-23, 2017	429.8	45
	% Difference	152.8%	187%

Table 59 – Yosemite Division Historical Performance

As indicated in Table 59, the Yosemite Division CAIDI value of 429.8 minutes for the January 18-23, 2017 major event days was 152.8% higher than the 170.0 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 45 for January 18-23, 2017 was 187% higher than the average of the corresponding prior 10 excludable major events of 16. The first day of the storm produced 46 sustained outages and reaching as much as 67 outages on the fourth day. This illustrates the intensity of the January 18th-23rd storm event.

The following six outages were the top contributing factors to the higher CAIDI value:

- Miwuk 1701 circuit – due to tree bark falling into the line and three outages due to trees falling into the line.
- Spring Gap 1701 circuit – due to (1) a tree branch falling into the line and (2) a tree falling into the line.

These six outages contributed 113.3 minutes to the January 18-23, 2017 overall CAIDI performance.

4. February 7, 2017 Major Event Day

The fourth major event was for February 7, 2017 caused by a winter storm that brought heavy rain and gusty southerly winds through northern two-thirds of the service area. Table 60 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(February 7, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	February 7, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	204.2	90.6%	NO
CENTRAL COAST	139.0	191.5	137.8%	Yes
DE ANZA	137.6	428.8	311.6%	Yes
DIABLO	126.9	138.1	108.9%	NO
EAST BAY	140.1	177.5	126.7%	Yes
FRESNO	98.2	79.9	81.4%	NO
HUMBOLDT	606.8	179.4	29.6%	NO
KERN	117.6	20.1	17.1%	NO
LOS PADRES	345.3	130.9	37.9%	NO
MISSION	138.5	147.8	106.7%	NO
NORTH BAY	203.0	235.7	116.1%	NO
NORTH VALLEY	436.3	230.6	52.9%	NO
PENINSULA	123.7	202.9	164.0%	Yes
SACRAMENTO	138.8	195.4	140.8%	Yes
SAN FRANCISCO	258.7	134.5	52.0%	NO
SAN JOSE	134.9	211.2	156.5%	Yes
SIERRA	301.2	608.8	202.1%	Yes
SONOMA	190.5	186.0	97.6%	NO
STOCKTON	188.1	308.1	163.8%	Yes
YOSEMITE	170.0	318.0	187.1%	Yes

Table 60 – February 7, 2017 CAIDI Performance

4.1 Central Coast Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	February 7, 2017	191.5	75
	% Difference	37.8%	106%

Table 61 – Central Coast Division Historical Performance

As indicated in Table 61, the Central Coast Division CAIDI value of 191.5 minutes for the February 7, 2017 major event day was 37.8% higher than the 139.0 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 75 for February 7, 2017 was 106% higher than the average of the corresponding prior 10 excludable major events of 36. This illustrates the intensity of the February 7th storm event.

The following four outages were the top contributing factors to the higher CAIDI value:

- Green Valley 2102 circuit – due to a failed jumper.
- Camp Evers 2105 circuit – due to a tree falling into the line.
- Green Valley 2104 circuit – due to a failed jumper.
- Camp Evers 2105 circuit – due to a mudslide.

These four outages contributed 28.7 minutes to the February 7, 2017 overall CAIDI performance.

4.2 De Anza Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DE ANZA	December 11-12, 2014	192.7	13
DE ANZA	December 30, 2014	235.2	17
DE ANZA	February 6-8, 2015	104.8	20
DE ANZA	April 6, 2015	46.4	2
DE ANZA	June 8, 2015	395.8	9
DE ANZA	July 18-19, 2015	146.7	2
DE ANZA	December 13, 2015	71.7	8
DE ANZA	February 17, 2016	138.5	26
DE ANZA	March 5, 2016	141.4	34
DE ANZA	October 14, 2016	73.9	11
	Average of 10 excludable major events	137.6	14
DE ANZA	February 7, 2017	428.8	17
	% Difference	211.6%	21%

Table 62 – De Anza Division Historical Performance

As indicated in Table 62, the De Anza Division CAIDI value of 428.8 minutes for the February 7, 2017 major event day was 211.6% higher than the 137.6 minutes average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- Stelling 1110 circuit – due to a failed overhead conductor.
- Los Gatos 1106 circuit – due to a tree falling into the line.
- Hicks1115 circuit – due to a tree falling into the line.
- Stelling 1111 circuit – due to a failed underground transformer.
- Los Gatos 107 circuit – due to a tree branch falling into the line.

These five outages contributed 234.5 minutes to the February 7, 2017 overall CAIDI performance.

4.3 East Bay Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
EAST BAY	August 24, 2014	50.0	1
EAST BAY	December 3, 2014	46.9	6
EAST BAY	December 11-12, 2014	170.7	16
EAST BAY	December 30, 2014	113.1	24
EAST BAY	February 6-8, 2015	76.3	11
EAST BAY	June 8, 2015	113.9	7
EAST BAY	December 13, 2015	91.1	9
EAST BAY	February 17, 2016	57.5	11
EAST BAY	March 5, 2016	94.7	20
EAST BAY	October 14, 2016	218.2	35
	Average of 10 excludable major events	140.1	14
EAST BAY	February 7, 2017	177.5	13
	% Difference	26.7%	-6%

Table 63 – East Bay Division Historical Performance

As indicated in Table 63, the East Bay Division CAIDI value of 177.5 minutes for the February 7, 2017 major event day was 26.7% higher than the 140.1 minutes average of the prior 10 weather-related excludable major events.

The following four outages were the top contributing factors to the higher CAIDI value:

- Station J 1102 circuit – due to a tree falling into the line.
- Barrett 401 circuit – due to a failed over conductor.
- Richmond 1122 circuit – due to a failed overhead switch.
- Station X 1104 circuit – due to a tree branch falling into the line.

These four outages contributed 37.0 minutes to the February 7, 2017 overall CAIDI performance.

4.4 Peninsula Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
PENINSULA	December 30, 2014	113.4	23
PENINSULA	February 6-8, 2015	158.1	30
PENINSULA	April 6, 2015	216.0	1
PENINSULA	June 8, 2015	69.5	5
PENINSULA	July 18-19, 2015	42.0	3
PENINSULA	December 13, 2015	119.6	20
PENINSULA	December 24, 2015	448.7	3
PENINSULA	February 17, 2016	104.2	17
PENINSULA	March 5, 2016	139.9	34
PENINSULA	October 14, 2016	67.8	24
	Average of 10 excludable major events	123.7	17
PENINSULA	February 7, 2017	202.9	32
	% Difference	64.0%	86%

Table 64 – Peninsula Division Historical Performance

As indicated in Table 64, the Peninsula Division CAIDI value of 202.9 minutes for the February 7, 2017 major event day was 64.0% higher than the 123.7 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 32 for February 7, 2017 was 86% higher than the average of the corresponding prior 10 excludable major events of 17. This illustrates the intensity of the February 7th storm event.

The following four outages were the top contributing factors to the higher CAIDI value:

- Woodside 1110 circuit – due to a tree falling into the line.
- Serramonte 1104 circuit – due to a tree branch falling into the line.
- Bay Meadows 2102 circuit – of unknown cause (the line was patrolled and nothing was found).
- Woodside 1110 circuit – due to a failed overhead conductor.

These four outages contributed 47.0 minutes to the February 7, 2017 overall CAIDI performance.

4.5 Sacramento Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SACRAMENTO	December 30, 2014	91.1	34
SACRAMENTO	February 6-8, 2015	132.0	19
SACRAMENTO	April 6, 2015	9.8	4
SACRAMENTO	June 8, 2015	178.9	18
SACRAMENTO	July 18-19, 2015	418.6	2
SACRAMENTO	December 13, 2015	142.3	58
SACRAMENTO	December 24, 2015	140.4	6
SACRAMENTO	February 17, 2016	115.9	23
SACRAMENTO	March 5, 2016	217.5	55
SACRAMENTO	October 14, 2016	126.4	32
	Average of 10 excludable major events	138.8	24
SACRAMENTO	February 7, 2017	195.4	42
	% Difference	40.8%	74%

Table 65 – Sacramento Division Historical Performance

As indicated in Table 65, the Sacramento Division CAIDI value of 195.4 minutes for the February 7, 2017 major event day was 40.8% higher than the 138.8 minutes average of the prior 10 weather-related excludable major events.

The following outage was the top contributing factors to the higher CAIDI value:

- Vacaville 1112 circuit – due to a failed underground connector / splice.

This outage contributed 66.2 minutes to the February 7, 2017 overall CAIDI performance.

4.6 San Jose Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SAN JOSE	December 30, 2014	161.1	41
SAN JOSE	February 6-8, 2015	123.5	8
SAN JOSE	April 6, 2015	94.8	1
SAN JOSE	June 8, 2015	139.2	15
SAN JOSE	July 18-19, 2015	106.6	4
SAN JOSE	December 13, 2015	77.2	21
SAN JOSE	December 24, 2015	100.0	3
SAN JOSE	February 17, 2016	79.3	14
SAN JOSE	March 5, 2016	162.4	10
SAN JOSE	October 14, 2016	124.3	6
	Average of 10 excludable major events	134.9	11
SAN JOSE	February 7, 2017	211.2	16
	% Difference	56.5%	45%

Table 66 – San Jose Division Historical Performance

As indicated in Table 66, the San Jose Division CAIDI value of 211.2 minutes for the February 7, 2017 major event day was 56.5% higher than the 134.9 minutes average of the prior 10 weather-related excludable major events.

The following outage was the top contributing factors to the higher CAIDI value:

- Morgan Hill 2111 circuit – due to a mudslide.

This outage contributed 77.4 minutes to the February 7, 2017 overall CAIDI performance.

4.7 Sierra Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SIERRA	December 30, 2014	339.2	103
SIERRA	February 6-8, 2015	489.0	40
SIERRA	April 6, 2015	48.6	2
SIERRA	June 8, 2015	188.9	5
SIERRA	July 18-19, 2015	12.4	3
SIERRA	December 13, 2015	139.2	27
SIERRA	December 24, 2015	293.3	8
SIERRA	February 17, 2016	280.6	76
SIERRA	March 5, 2016	187.8	53
SIERRA	October 14, 2016	113.3	15
	Average of 10 excludable major events	301.2	32
SIERRA	February 7, 2017	608.8	33
	% Difference	102.1%	3%

Table 67 – Sierra Division Historical Performance

As indicated in Table 67, the Sierra Division CAIDI value of 606.8 minutes for the February 7, 2017 major event day was 102.1% higher than the 301.2 minutes average of the prior 10 weather-related excludable major events.

The following five outages was the top contributing factors to the higher CAIDI value:

- Alleghany 1101 circuit – due to unknown cause (the line was patrolled and nothing was found).
- Echo Summit 1101 – due to a tree falling into the line.
- Brunswick 1104 – due to a tree falling into the line.
- Columbia Hill 1104 – due to a tree falling into the line.
- Brunswick 1106 – due to a tree falling into the line.

These five outages contributed 229.4 minutes to the February 7, 2017 overall CAIDI performance.

4.8 Stockton Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
STOCKTON	December 30, 2014	288.3	37.0
STOCKTON	February 6-8, 2015	135.7	20
STOCKTON	April 6, 2015	43.7	5
STOCKTON	June 8, 2015	132.6	12
STOCKTON	July 18-19, 2015	173.8	6
STOCKTON	December 13, 2015	146.7	27
STOCKTON	December 24, 2015	261.1	16
STOCKTON	February 17, 2016	175.0	29
STOCKTON	March 5, 2016	210.2	33
STOCKTON	October 14, 2016	132.1	31
	Average of 10 excludable major events	188.1	20
STOCKTON	February 7, 2017	308.1	20
	% Difference	63.8%	-1%

Table 68 – Stockton Division Historical Performance

As indicated in Table 68, the Stockton Division CAIDI value of 308.1 minutes for the February 7, 2017 major event day was 63.8% higher than the 188.1 minutes average of the prior 10 weather-related excludable major events.

The following two outages were the top contributing factors to the higher CAIDI value:

- Lockeford 2102 circuit – due to a broken pole.
- Ione 1101 circuit – due to a tree falling into the line.

These two outages contributed 154.1 minutes to the February 7, 2017 overall CAIDI performance.

4.9 Yosemite Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
YOSEMITE	December 30, 2014	447.5	23
YOSEMITE	February 6-8, 2015	128.0	20
YOSEMITE	April 6, 2015	111.2	6
YOSEMITE	June 8, 2015	101.4	13
YOSEMITE	July 18-19, 2015	97.2	9
YOSEMITE	December 13, 2015	110.8	15
YOSEMITE	December 24, 2015	75.9	14
YOSEMITE	February 17, 2016	118.1	29
YOSEMITE	March 5, 2016	132.4	18
YOSEMITE	October 14, 2016	118.7	10
	Average of 10 excludable major events	170.0	16
YOSEMITE	February 7, 2017	318.0	21
	% Difference	87.1%	33%

Table 69 – Yosemite Division Historical Performance

As indicated in Table 69, the Yosemite Division CAIDI value of 318.0 minutes for the February 7, 2017 major event day was 87.1% higher than the 170.0 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 21 for February 7, 2017 was 33% higher than the average of the corresponding prior 10 excludable major events of 16. This illustrates the intensity of the February 7th storm event.

The following four outages were the top contributing factors to the higher CAIDI value:

- Riverbank 1712 circuit – due to a failed underground switch.
- Mariposa 2102 circuit – due to a tree falling into the line.
- Spring Gap 1701 circuit – due to an underground cable failure.
- Curtis 1704 circuit – due to a tree falling into the line.

These four outages contributed 95.9 minutes to the February 7, 2017 overall CAIDI performance.

5. February 9, 2017 Major Event Day

The fifth major event was for February 9, 2017 caused by a winter storm that brought heavy rain and gusty southerly winds through the service area. Table 70 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(February 9, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	February 9, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	192.0	85.2%	NO
CENTRAL COAST	139.0	506.8	364.6%	Yes
DE ANZA	137.6	134.5	97.7%	NO
DIABLO	126.9	141.3	111.4%	NO
EAST BAY	140.1	75.9	54.2%	NO
FRESNO	98.2	80.4	81.9%	NO
HUMBOLDT	606.8	247.4	40.8%	NO
KERN	117.6	459.7	390.8%	Yes
LOS PADRES	345.3	225.0	65.2%	NO
MISSION	138.5	131.0	94.6%	NO
NORTH BAY	203.0	126.8	62.5%	NO
NORTH VALLEY	436.3	47.0	10.8%	NO
PENINSULA	123.7	135.8	109.7%	NO
SACRAMENTO	138.8	96.6	69.6%	NO
SAN FRANCISCO	258.7	0.0	0.0%	NO
SAN JOSE	134.9	33.4	24.8%	NO
SIERRA	301.2	1371.4	455.2%	Yes
SONOMA	190.5	292.3	153.5%	Yes
STOCKTON	188.1	70.5	37.5%	NO
YOSEMITE	170.0	69.1	40.6%	NO

Table 70 – February 9, 2017 CAIDI Performance

5.1 Central Coast Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	February 9, 2017	506.8	33
	% Difference	264.6%	-9%

Table 71 – Central Coast Division Historical Performance

As indicated in Table 71, the Central Coast Division CAIDI value of 506.8 minutes for the February 9, 2017 major event day was 264.6% higher than the 139.0 minutes average of the prior 10 weather-related excludable major events.

The following nine outages were the top contributing factors to the higher CAIDI value:

- San Ardo 1102 circuit – due to a tree falling into the line.
- Big Basin 1102 circuit – due to a tree falling into the line.
- Camp Evers 2104 circuit – due to a tree falling into the line.
- Rob Roy 2104 circuit – due to a mudslide.
- Rob Roy 2015 circuit – three main outages all due to trees falling into the line.
- Watsonville 2101 circuit – due to a tree falling into the line.
- Ben Lomond 401 circuit – due to a tree falling into the line.

These nine outages contributed 351.9 minutes to the February 9, 2017 overall CAIDI performance.

5.2 Kern Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
KERN	December 30, 2014	20.0	6
KERN	February 6-8, 2015	67.9	4
KERN	April 6, 2015	66.9	3
KERN	June 8, 2015	325.4	8
KERN	July 18-19, 2015	163.9	44
KERN	December 13, 2015	144.1	5
KERN	December 24, 2015	119.0	1
KERN	February 17, 2016	271.6	4
KERN	March 5, 2016	271.7	4
KERN	October 14, 2016	18.4	4
	Average of 10 excludable major events	117.6	10
KERN	February 9, 2017	459.7	3
	% Difference	290.8%	-71%

Table 72 – Kern Division Historical Performance

As indicated in Table 72, the Kern Division CAIDI value of 459.7 minutes for the February 9, 2017 major event day was 290.8% higher than the 117.6 minutes average of the prior 10 weather-related excludable major events.

The following three outages were experienced on February 9th that contributed to the higher CAIDI value:

- Poso Mountain 2101 circuit – of unknown cause (the line was patrolled and nothing was found).
- Carneras 1103 circuit – due to a car-pole accident.
- Panama 2102 circuit – due to an underground cable failure.

These three outages contributed 459.7 minutes to the February 9, 2017 overall CAIDI performance.

5.3 Sierra Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SIERRA	December 30, 2014	339.2	103
SIERRA	February 6-8, 2015	489.0	40
SIERRA	April 6, 2015	48.6	2
SIERRA	June 8, 2015	188.9	5
SIERRA	July 18-19, 2015	12.4	3
SIERRA	December 13, 2015	139.2	27
SIERRA	December 24, 2015	293.3	8
SIERRA	February 17, 2016	280.6	76
SIERRA	March 5, 2016	187.8	53
SIERRA	October 14, 2016	113.3	15
	Average of 10 excludable major events	301.2	32
SIERRA	February 9, 2017	1,371.4	10
	% Difference	355.2%	-69%

Table 73 – Sierra Division Historical Performance

As indicated in Table 73, the Sierra Division CAIDI value of 1,371.4 minutes for the February 9, 2017 major event day was 355.2% higher than the 301.2 minutes average of the prior 10 weather-related excludable major events.

The following four outages were the top contributing factors to the higher CAIDI value:

- Del Mar 2110 circuit – due to a pole fire.
- Echo Summit 1101 circuit – due to a tree falling into the line.
- Apple Hill 2102 circuit – due to a tree falling into the line.
- El Dorado 2101 circuit – due to a failed overhead conductor.

These four outages contributed 1,184.5 minutes to the February 9, 2017 overall CAIDI performance.

5.4 Sonoma Division CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SONOMA	December 30, 2014	84.9	45
SONOMA	February 6-8, 2015	248.5	65
SONOMA	April 6, 2015	117.8	3
SONOMA	June 8, 2015	194.2	7
SONOMA	July 18-19, 2015	71.2	4
SONOMA	December 13, 2015	230.6	34
SONOMA	December 24, 2015	139.8	5
SONOMA	February 17, 2016	55.9	3
SONOMA	March 5, 2016	168.2	53
SONOMA	October 14, 2016	140.1	9
	Average of 10 excludable major events	190.5	28
SONOMA	February 9, 2017	292.3	18
	% Difference	53.5%	-35%

Table 74 – Sonoma Division Historical Performance

As indicated in Table 74, the Sonoma Division CAIDI value of 292.3 minutes for the February 9, 2017 major event day was 53.5% higher than the 190.5 minutes average of the prior 10 weather-related excludable major events.

The following two outages were the top contributing factors to the higher CAIDI value:

- Monte Rio 1113 circuit – due to a tree falling into the line.
- Rincon 1103 circuit – due to a tree falling into the line.

These two outages contributed 151.2 minutes to the February 9, 2017 overall CAIDI performance.

6. February 17-22, 2017 Major Event Days

The sixth major event was from February 17-22, 2017 caused by a series of winter storms that brought heavy rain and strong southerly winds through the service area (in particular, Central Coast division where wind gusts at the Salinas airport were reported at 69 mph). Table 75 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(February 17-22, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	February 17-22, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	424.0	188.1%	Yes
CENTRAL COAST	139.0	889.4	639.8%	Yes
DE ANZA	137.6	897.8	652.3%	Yes
DIABLO	126.9	171.6	135.2%	Yes
EAST BAY	140.1	98.2	70.1%	NO
FRESNO	98.2	160.9	163.8%	Yes
HUMBOLDT	606.8	328.5	54.1%	NO
KERN	117.6	42.2	35.9%	NO
LOS PADRES	345.3	488.1	141.4%	Yes
MISSION	138.5	99.1	71.6%	NO
NORTH BAY	203.0	210.0	103.5%	NO
NORTH VALLEY	436.3	270.7	62.0%	NO
PENINSULA	123.7	166.3	134.4%	Yes
SACRAMENTO	138.8	119.7	86.3%	NO
SAN FRANCISCO	258.7	161.7	62.5%	NO
SAN JOSE	134.9	332.1	246.2%	Yes
SIERRA	301.2	714.4	237.1%	Yes
SONOMA	190.5	73.6	38.6%	NO
STOCKTON	188.1	213.7	113.6%	NO
YOSEMITE	170.0	235.5	138.6%	Yes

Table 75 – February 17-22, 2017 CAIDI Performance

6.1 System CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SYSTEM	December 30, 2014	202.6	643
SYSTEM	February 6-8, 2015	395.4	540
SYSTEM	April 6, 2015	193.5	85
SYSTEM	June 8, 2015	122.6	182
SYSTEM	July 18-19, 2015	169.4	282
SYSTEM	December 13, 2015	127.7	523
SYSTEM	December 24, 2015	344.5	135
SYSTEM	February 17, 2016	144.6	380
SYSTEM	March 5, 2016	176.4	620
SYSTEM	October 14, 2016	152.3	326
	Average of 10 excludable major events	225.4	391
SYSTEM	February 17-22, 2017	424.0	462
	% Difference	88.1%	18%

Table 76 – System Historical Performance

As indicated in Table 76, the system CAIDI value of 424.0 minutes for the February 17-22, 2017 major event days was 88.2% higher than the 225.4 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 462 for February 17-22, 2017 was 18% higher than the average of the corresponding prior 10 excludable major events of 391. The first day of the storm produced 929 sustained outages (138% higher than the average of the prior 10 years). This illustrates the intensity of the February 17th - 22nd storm event.

The following twelve outages were the top contributing factors to the higher CAIDI value:

- Trinity – Maple Creek 60 kV line – due to a failed conductor.
- Elk Creek 60 kV – due to a broken pole when a crop duster hit the 60 kV line.
- Del Monte 2104 circuit – due to a tree falling into the line.
- Prunedale 1107 circuit – due to a tree falling into the line.
- Gabilan 1101 circuit – due to a tree falling into the line.
- Castroville 2103 circuit – due to a failed overhead conductor.
- Dolan Road 1101 circuit – two outages involving trees falling into the line.
- Prunedale 1110 circuit – due to a tree falling into the line.
- Camp Evers 2106 circuit – due to a tree falling into the line.
- Mountain View 1108 circuit – due to a tree falling into the line.
- San Luis Obispo 1104 circuit – due to a tree falling into the line.

These twelve outages contributed 73.7 minutes to the February 17-22, 2017 overall CAIDI performance.

6.2 Central Coast CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	February 17-22, 2017	889.4	123
	% Difference	539.8%	239%

Table 77 – Central Coast Historical Performance

As indicated in Table 77, the Central Coast division CAIDI value of 889.4 minutes for the February 17-22, 2017 major event days was 539.8% higher than the 139.0 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 123 for February 17-22, 2017 was 239% higher than the average of the corresponding prior 10 excludable major events of 36. The first day of the storm produced 253 sustained outages (595% higher than the average of the prior 10 years). This illustrates the intensity of the February 17th-22nd storm event.

The following sixteen outages were the top contributing factors to the higher CAIDI value:

- Del Monte 2104 circuit – due to a tree falling into the line.
- Prunedale 1107 circuit – due to a tree falling into the line.
- Gabilan 1101 circuit – two outages involving trees falling into the line.
- Castroville 2103 circuit – due to a failed overhead conductor.
- Dolan Road 1101 circuit – two outages involving trees falling into the line.
- Prunedale 1110 circuit – due to a tree falling into the line.
- Salinas 1104 circuit – due to a failed anchor / guy.
- Boronda 1101 circuit – due to a tree falling into the line.
- Del Monte 2102 circuit – due to a failed overhead conductor.
- Salinas 1103 circuit – due to a tree falling into the line.
- Otter 1102 circuit – due to a tree falling into the line.
- Viejo 2202 circuit – due to a tree falling into the line.
- Camp Evers 2106 circuit – due to a tree falling into the line.
- Hatton 1102 circuit – due to a tree falling into the line.

These sixteen outages contributed 293.9 minutes to the February 17-22, 2017 overall CAIDI performance.

6.3 De Anza CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DE ANZA	December 11-12, 2014	192.7	13
DE ANZA	December 30, 2014	235.2	17
DE ANZA	February 6-8, 2015	104.8	20
DE ANZA	April 6, 2015	46.4	2
DE ANZA	June 8, 2015	395.8	9
DE ANZA	July 18-19, 2015	146.7	2
DE ANZA	December 13, 2015	71.7	8
DE ANZA	February 17, 2016	138.5	26
DE ANZA	March 5, 2016	141.4	34
DE ANZA	October 14, 2016	73.9	11
	Average of 10 excludable major events	137.6	14
DE ANZA	February 17-22, 2017	897.8	15
	% Difference	552.3%	7%

Table 78 – De Anza Historical Performance

As indicated in Table 78, the De Anza division CAIDI value of 897.8 minutes for the February 17-22, 2017 major event days was 552.3% higher than the 137.6 minutes average of the prior 10 weather-related excludable major events.

Although the average number of sustained outages per day of 15 for February 17-22, 2017 was 7% higher than the average of the corresponding prior 10 excludable major events of 14, the third day of the storm produced 40 sustained outages (185% higher than the average of the prior 10 years). This illustrates the intensity of the February 17th - 22nd storm event.

The following eight outages were the top contributing factors to the higher CAIDI value:

- Camp Evers 2106 circuit – due to a tree falling into the line.
- Los Gatos 1106 circuit – three outages involving trees falling into the line.
- Los Gatos 1107 circuit – due to a broken pole.
- El Patio 1104 circuit – due to a failed overhead conductor.
- Stelling 1110 circuit – due to a failed overhead conductor.
- Mountain View 1108 circuit – due to a tree falling into the line.

These eight outages contributed 489.7 minutes to the February 17-22, 2017 overall CAIDI performance.

6.4 Diablo CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DIABLO	December 11-12, 2014	199.1	20
DIABLO	December 30, 2014	183.0	47
DIABLO	February 6-8, 2015	87.5	16
DIABLO	April 6, 2015	112.0	1
DIABLO	June 8, 2015	104.5	23
DIABLO	July 18-19, 2015	144.8	3
DIABLO	December 13, 2015	31.6	7
DIABLO	February 17, 2016	81.7	9
DIABLO	March 5, 2016	247.2	18
DIABLO	October 14, 2016	176.3	12
	Average of 10 excludable major events	126.9	15
DIABLO	February 17-22, 2017	171.6	8
	% Difference	35.2%	-47%

Table 79 – Diablo Historical Performance

As indicated in Table 79, the Diablo division CAIDI value of 171.6 minutes for the February 17-22, 2017 major event days was 35.2% higher than the 126.9 minutes average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- Contra Costa 2116 circuit – due to a failed overhead connector / splice.
- Brentwood 2105 circuit – two outages, one of unknown cause (line was patrolled and nothing was found) and the second involving a tree falling into the line.
- Kirker 2103 circuit – due to a failed elbow.
- Brentwood 2106 circuit – due to a failed underground transformer.

These five outages contributed 35.5 minutes to the February 17-22, 2017 overall CAIDI performance.

6.5 Fresno CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
FRESNO	December 30, 2014	392.1	4
FRESNO	February 6-8, 2015	100.8	10
FRESNO	April 6, 2015	13.8	8
FRESNO	June 8, 2015	67.3	18
FRESNO	July 18-19, 2015	119.0	73
FRESNO	December 13, 2015	23.7	18
FRESNO	December 24, 2015	21.8	9
FRESNO	February 17, 2016	83.8	25
FRESNO	March 5, 2016	60.9	11
FRESNO	October 14, 2016	116.7	5
	Average of 10 excludable major events	98.2	23
FRESNO	February 17-22, 2017	160.9	20
	% Difference	63.8%	-10%

Table 80 – Fresno Historical Performance

As indicated in Table 80, the Fresno division CAIDI value of 160.9 minutes for the February 17-22, 2017 major event days was 63.8% higher than the 98.2 minutes average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- Kerman 1102 circuit – due to a broken pole.
- Kerman 1104 circuit – outage of unknown cause (line was patrolled but nothing was found).
- Biola 1103 circuit – due to a failed overhead conductor.
- Corcoran 1108 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Dunlap 1103 circuit – due to a tree falling into the line.

These five outages contributed 47.8 minutes to the February 17-22, 2017 overall CAIDI performance.

6.6 Los Padres CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
LOS PADRES	December 30, 2014	86.0	1
LOS PADRES	February 6-8, 2015	95.0	5
LOS PADRES	April 6, 2015	169.8	2
LOS PADRES	June 8, 2015	260.3	3
LOS PADRES	July 18-19, 2015	437.7	100
LOS PADRES	December 13, 2015	291.3	6
LOS PADRES	December 24, 2015	542.0	1
LOS PADRES	February 17, 2016	214.3	10
LOS PADRES	March 5, 2016	135.2	6
LOS PADRES	October 14, 2016	32.6	5
	Average of 10 excludable major events	345.3	19
LOS PADRES	February 17-22, 2017	488.1	27
	% Difference	41.4%	44%

Table 81 – Los Padres Historical Performance

As indicated in Table 81, the Los Padres division CAIDI value of 488.1 minutes for the February 17-22, 2017 major event days was 41.4% higher than the 345.3 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 27 for February 17-22, 2017 was 44% higher than the average of the corresponding prior 10 excludable major events of 19. The first day of the storm produced 79 sustained outages (316% higher than the average of the prior 10 years). This illustrates the intensity of the February 17th-22nd storm event.

The following five outages were the top contributing factors to the higher CAIDI value:

- Oceano 1104 circuit – two outages; the first due to a failed overhead conductor and the second one due to a tree falling into the line.
- San Luis Obispo 1104 circuit – due to a tree falling into the line.
- Cholame 2102 circuit – due to a tree branch falling into the line.
- Morro Bay 1101 circuit – due to a failed overhead conductor.

These five outages contributed 154.7 minutes to the February 17-22, 2017 overall CAIDI performance.

6.7 Peninsula CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
PENINSULA	December 30, 2014	113.4	23
PENINSULA	February 6-8, 2015	158.1	30
PENINSULA	April 6, 2015	216.0	1
PENINSULA	June 8, 2015	69.5	5
PENINSULA	July 18-19, 2015	42.0	3
PENINSULA	December 13, 2015	119.6	20
PENINSULA	December 24, 2015	448.7	3
PENINSULA	February 17, 2016	104.2	17
PENINSULA	March 5, 2016	139.9	34
PENINSULA	October 14, 2016	67.8	24
	Average of 10 excludable major events	123.7	17
PENINSULA	February 17-22, 2017	166.3	15
	% Difference	34.4%	-13%

Table 82 – Peninsula Historical Performance

As indicated in Table 82, the Peninsula division CAIDI value of 166.3 minutes for the February 17-22, 2017 major event days was 34.4% higher than the 123.7 minutes average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- Half Moon Bay 1103 circuit – two outages; the first due to a broken pole and the second one due to a tree falling into the line.
- Belle Haven 404 circuit – due to a tree branch falling into the line.
- Millbrae 1104 circuit – due to a tree falling into the line.
- Sneath Lane 1106 circuit – due to a tree falling into the line.

These five outages contributed 39.5 minutes to the February 17-22, 2017 overall CAIDI performance.

6.8 San Jose CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SAN JOSE	December 30, 2014	161.1	41
SAN JOSE	February 6-8, 2015	123.5	8
SAN JOSE	April 6, 2015	94.8	1
SAN JOSE	June 8, 2015	139.2	15
SAN JOSE	July 18-19, 2015	106.6	4
SAN JOSE	December 13, 2015	77.2	21
SAN JOSE	December 24, 2015	100.0	3
SAN JOSE	February 17, 2016	79.3	14
SAN JOSE	March 5, 2016	162.4	10
SAN JOSE	October 14, 2016	124.3	6
	Average of 10 excludable major events	134.9	11
SAN JOSE	February 17-22, 2017	332.1	30
	% Difference	146.2%	175%

Table 83 – San Jose Historical Performance

As indicated in Table 83, the San Jose division CAIDI value of 332.1 minutes for the February 17-22, 2017 major event days was 146.2% higher than the 134.9 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 30 for February 17-22, 2017 was 175% higher than the average of the corresponding prior 10 excludable major events of 11. The first day of the storm produced 79 sustained outages (618% higher than the average of the prior 10 years). This illustrates the intensity of the February 17th-22nd storm event.

The following six outages were the top contributing factors to the higher CAIDI value:

- Edenvale 1101 circuit – due to a broken pole.
- Mabury 1104 circuit – due to a tree falling into the line.
- Evergreen 2101 circuit – due to a tree falling into the line.
- Llagas 2103 circuit – due to a broken insulator.
- Hicks 1109 circuit – due to a tree falling into the line.
- Evergreen 2102 circuit – due to flooding.

These five outages contributed 41.7 minutes to the February 17-22, 2017 overall CAIDI performance.

6.9 Sierra CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SIERRA	December 30, 2014	339.2	103
SIERRA	February 6-8, 2015	489.0	40
SIERRA	April 6, 2015	48.6	2
SIERRA	June 8, 2015	188.9	5
SIERRA	July 18-19, 2015	12.4	3
SIERRA	December 13, 2015	139.2	27
SIERRA	December 24, 2015	293.3	8
SIERRA	February 17, 2016	280.6	76
SIERRA	March 5, 2016	187.8	53
SIERRA	October 14, 2016	113.3	15
	Average of 10 excludable major events	301.2	32
SIERRA	February 17-22, 2017	714.4	22
	% Difference	137.1%	-32%

Table 84 – Sierra Historical Performance

As indicated in Table 84, the Sierra division CAIDI value of 714.4 minutes for the February 17-22, 2017 major event days was 137.1% higher than the 301.2 minutes average of the prior 10 weather-related excludable major events.

The following ten outages were the top contributing factors to the higher CAIDI value:

- Placerville 2106 circuit – due to a failed overhead conductor.
- Alleghany 1101 circuit – due to a tree branch falling into the line.
- Sierra City 1101 circuit – due to a tree falling into the line.
- Halsey 1101 circuit – due to a tree falling into the line.
- Summit 1101 circuit – three outages; one to a failed overhead conductor and two due to trees falling into the line.
- Tamarack 1101 circuit – due to a failed overhead conductor.
- Echo Summit 1101 circuit – two outages; one to a broken cross-arm and one due to a tree falling into the line.

These ten outages contributed 317.0 minutes to the February 17-22, 2017 overall CAIDI performance.

6.10 Yosemite CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
YOSEMITE	December 30, 2014	447.5	23
YOSEMITE	February 6-8, 2015	128.0	20
YOSEMITE	April 6, 2015	111.2	6
YOSEMITE	June 8, 2015	101.4	13
YOSEMITE	July 18-19, 2015	97.2	9
YOSEMITE	December 13, 2015	110.8	15
YOSEMITE	December 24, 2015	75.9	14
YOSEMITE	February 17, 2016	118.1	29
YOSEMITE	March 5, 2016	132.4	18
YOSEMITE	October 14, 2016	118.7	10
	Average of 10 excludable major events	170.0	16
YOSEMITE	February 17-22, 2017	235.5	33
	% Difference	38.6%	109%

Table 85 – Yosemite Historical Performance

As indicated in Table 85, the Yosemite division CAIDI value of 235.5 minutes for the February 17-22, 2017 major event days was 38.6% higher than the 170.0 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 33 for February 17-22, 2017 was 109% higher than the average of the corresponding prior 10 excludable major events of 16. The first day of the storm produced 94 sustained outages (488% higher than the average of the prior 10 years). This illustrates the intensity of the February 17th-22nd storm event.

The following three outages were the top contributing factors to the higher CAIDI value:

- Merced Falls 1102 circuit – due to a broken pole.
- Bear Valley 2105 circuit – due to a tree falling into the line.
- Miwuk 1702 circuit – due to a tree falling into the line.

These three outages contributed 61.5 minutes to the February 17-22, 2017 overall CAIDI performance.

7. April 6-7, 2017 Major Event Days

The seventh major event was from April 6-7, 2017 caused by a very strong and dynamic winter storm. The storm was the most impactful April storm in the 22+ year PG&E outage record (back to 1995). This storm put the capstone on the wettest water year in PG&E's history. Table 86 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(April 6-7, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	April 6-7, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	294.6	130.7%	Yes
CENTRAL COAST	139.0	101.2	72.8%	NO
DE ANZA	137.6	226.6	164.6%	Yes
DIABLO	126.9	371.7	293.0%	Yes
EAST BAY	140.1	405.2	289.3%	Yes
FRESNO	98.2	90.0	91.7%	NO
HUMBOLDT	606.8	290.2	47.8%	NO
KERN	117.6	166.4	141.5%	Yes
LOS PADRES	345.3	108.9	31.5%	NO
MISSION	138.5	421.9	304.7%	Yes
NORTH BAY	203.0	272.7	134.4%	Yes
NORTH VALLEY	436.3	224.1	51.4%	NO
PENINSULA	123.7	161.5	130.5%	Yes
SACRAMENTO	138.8	102.5	73.9%	NO
SAN FRANCISCO	258.7	135.7	52.4%	NO
SAN JOSE	134.9	164.2	121.7%	NO
SIERRA	301.2	233.4	77.5%	NO
SONOMA	190.5	445.0	233.6%	Yes
STOCKTON	188.1	71.8	38.2%	NO
YOSEMITE	170.0	520.4	306.2%	Yes

Table 86 – April 6-7, 2017 CAIDI Performance

7.1 System CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SYSTEM	December 30, 2014	202.6	643
SYSTEM	February 6-8, 2015	395.4	540
SYSTEM	April 6, 2015	193.5	85
SYSTEM	June 8, 2015	122.6	182
SYSTEM	July 18-19, 2015	169.4	282
SYSTEM	December 13, 2015	127.7	523
SYSTEM	December 24, 2015	344.5	135
SYSTEM	February 17, 2016	144.6	380
SYSTEM	March 5, 2016	176.4	620
SYSTEM	October 14, 2016	152.3	326
	Average of 10 excludable major events	225.4	391
SYSTEM	Apr 6-7, 2017	294.6	383
	% Difference	30.7%	-2%

Table 87 – System Historical Performance

As indicated in Table 87, the system CAIDI value of 294.6 minutes for the April 6-7, 2017 major event days was 30.7% higher than the 225.4 minutes average of the prior 10 weather-related excludable major events.

Although the average number of sustained outages per day of 383 for April 6-7, 2017 was 2% lower than the average of the corresponding prior 10 excludable major events of 391, the first day of the storm produced 442 sustained outages which is 13% higher than the average of the prior 10 years. This illustrates the intensity of the April 6th-7th storm event.

The following twelve outages were the top contributing factors to the higher CAIDI value:

- Loyola 1102 circuit – due to a tree falling into the line.
- Lakewood 2225 circuit – due to a failed overhead conductor.
- Waldo 402 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Solano 401 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Station G1111 circuit – due to a tree falling into the line.
- Richmond 1121 circuit – due to a failed overhead conductor.
- 8th Avenue 401 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Franklin 1102 circuit – due to an underground cable failure.
- Mt. Eden 1103 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Castro Valley 1107 circuit – due to a tree falling into the line.
- San Ramon 2107 circuit – due to a failed overhead switch.
- Pinecrest 401 circuit – due to a tree branch falling into the line.

These twelve outages contributed 54.4 minutes to the April 6-7, 2017 overall CAIDI performance.

7.2 De Anza CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DE ANZA	December 11-12, 2014	192.7	13
DE ANZA	December 30, 2014	235.2	17
DE ANZA	February 6-8, 2015	104.8	20
DE ANZA	April 6, 2015	46.4	2
DE ANZA	June 8, 2015	395.8	9
DE ANZA	July 18-19, 2015	146.7	2
DE ANZA	December 13, 2015	71.7	8
DE ANZA	February 17, 2016	138.5	26
DE ANZA	March 5, 2016	141.4	34
DE ANZA	October 14, 2016	73.9	11
	Average of 10 excludable major events	137.6	14
DE ANZA	Apr 6-7, 2017	226.6	22
	% Difference	64.6%	56%

Table 88 – De Anza Historical Performance

As indicated in Table 88, the De Anza division CAIDI value of 226.6 minutes for the April 6-7, 2017 major event days was 64.6% higher than the 137.6 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 22 for April 6-7, 2017 was 56% higher than the average of the corresponding prior 10 excludable major events of 14. The first day of the storm produced 28 sustained outages (100% higher than the average of the prior 10 years). This illustrates the intensity of the PRIL 6th-7th storm event.

The following five outages were the top contributing factors to the higher CAIDI value:

- Loyola 1102 circuit – two outages; one of unknown cause (line was patrolled and nothing was found) and the second due to a tree falling into the line.
- Loyola 403 circuit – due to a tree falling into the line.
- Loyola 401 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Loyola 1101 circuit – due to a tree branch falling into the line.

These five outages contributed 66.0 minutes to the April 6-7, 2017 overall CAIDI performance.

7.3 Diablo CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DIABLO	December 11-12, 2014	199.1	20
DIABLO	December 30, 2014	183.0	47
DIABLO	February 6-8, 2015	87.5	16
DIABLO	April 6, 2015	112.0	1
DIABLO	June 8, 2015	104.5	23
DIABLO	July 18-19, 2015	144.8	3
DIABLO	December 13, 2015	31.6	7
DIABLO	February 17, 2016	81.7	9
DIABLO	March 5, 2016	247.2	18
DIABLO	October 14, 2016	176.3	12
	Average of 10 excludable major events	126.9	15
DIABLO	Apr 6-7, 2017	371.7	25
	% Difference	193.0%	66%

Table 89 – Diablo Historical Performance

As indicated in Table 89, the Diablo division CAIDI value of 371.7 minutes for the April 6-7, 2017 major event days was 193.0% higher than the 126.9 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 25 for April 6-7, 2017 was 66% higher than the average of the corresponding prior 10 excludable major events of 15. The first day of the storm produced 31 sustained outages (107% higher than the average of the prior 10 years). This illustrates the intensity of the PRIL 6^{th}-7^{th} storm event.

The following nine outages were the top contributing factors to the higher CAIDI value:

- Lakewood 2224 circuit – two outages; one due to a failed overhead conductor and the second due to a tree branch falling into the line.
- Alhambra 1105 circuit – due to a tree falling into the line.
- Tassajara 2108 circuit – due to a tree branch falling into the line.
- Lakewood 2225 circuit – due to a failed overhead conductor.
- Moraga 1102 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Lakewood 2112 circuit – due to a malfunctioned line recloser.
- Clayton 2218 circuit – due to a failed overhead connector / splice.
- Robles 401 circuit – due to a failed overhead conductor.

These nine outages contributed 136.8 minutes to the April 6-7, 2017 overall CAIDI performance.

7.4 East Bay CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
EAST BAY	August 24, 2014	50.0	1
EAST BAY	December 3, 2014	46.9	6
EAST BAY	December 11-12, 2014	170.7	16
EAST BAY	December 30, 2014	113.1	24
EAST BAY	February 6-8, 2015	76.3	11
EAST BAY	June 8, 2015	113.9	7
EAST BAY	December 13, 2015	91.1	9
EAST BAY	February 17, 2016	57.5	11
EAST BAY	March 5, 2016	94.7	20
EAST BAY	October 14, 2016	218.2	35
	Average of 10 excludable major events	140.1	14
EAST BAY	Apr 6-7, 2017	405.2	29
	% Difference	189.3%	110%

Table 90 – East Bay Historical Performance

As indicated in Table 90, the East Bay division CAIDI value of 405.2 minutes for the April 6-7, 2017 major event days was 189.3% higher than the 140.1 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 29 for April 6-7, 2017 was 110% higher than the average of the corresponding prior 10 excludable major events of 14. The first day of the storm produced 42 sustained outages (200% higher than the average of the prior 10 years). This illustrates the intensity of the PRIL 6th-7th storm event.

The following nine outages were the top contributing factors to the higher CAIDI value:

- Waldo 402 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Solano 401 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Station G 1111 circuit – due to a tree falling into the line.
- Station X 1103 circuit – due to a tree falling into the line.
- Richmond 1121 circuit – due to a failed overhead conductor.
- 8th Avenue 401 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Station G 1112 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Station G 1114 circuit – due to a failed overhead jumper.
- Franklin 1102 circuit – due to an underground cable failure.

These nine outages contributed 195.3 minutes to the April 6-7, 2017 overall CAIDI performance.

7.5 Kern CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
KERN	December 30, 2014	20.0	6
KERN	February 6-8, 2015	67.9	4
KERN	April 6, 2015	66.9	3
KERN	June 8, 2015	325.4	8
KERN	July 18-19, 2015	163.9	44
KERN	December 13, 2015	144.1	5
KERN	December 24, 2015	119.0	1
KERN	February 17, 2016	271.6	4
KERN	March 5, 2016	271.7	4
KERN	October 14, 2016	18.4	4
	Average of 10 excludable major events	117.6	10
KERN	Apr 6-7, 2017	166.4	9
	% Difference	41.5%	-13%

Table 91 – Kern Historical Performance

As indicated in Table 91, the Kern division CAIDI value of 166.4 minutes for the April 6-7, 2017 major event days was 41.5% higher than the 117.6 minutes average of the prior 10 weather-related excludable major events.

The following four outages were the top contributing factors to the higher CAIDI value:

- Tejon 1112 circuit – due to a car-pole accident.
- San Bernard 1101 circuit – due to a car-pole accident.
- Wheeler Ridge 1101 circuit – due to a car-pole accident.
- Poso Mountain 2101 circuit – due to a failed insulator.

These nine outages contributed 195.3 minutes to the April 6-7, 2017 overall CAIDI performance.

7.6 Mission CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
MISSION	December 30, 2014	135.7	31.0
MISSION	February 6-8, 2015	51.5	4
MISSION	April 6, 2015	74.3	2
MISSION	June 8, 2015	159.7	12
MISSION	July 18-19, 2015	250.2	2
MISSION	December 13, 2015	176.0	6
MISSION	December 24, 2015	165.5	2
MISSION	February 17, 2016	131.3	8
MISSION	March 5, 2016	209.3	6
MISSION	October 14, 2016	174.5	29
	Average of 10 excludable major events	138.5	9
MISSION	Apr 6-7, 2017	421.9	26
	% Difference	204.7%	202%

Table 92 – Mission Historical Performance

As indicated in Table 92, the Mission division CAIDI value of 421.9 minutes for the April 6-7, 2017 major event days was 204.7% higher than the 138.5 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 26 for April 6-7, 2017 was 202% higher than the average of the corresponding prior 10 excludable major events of 9. The first day of the storm produced 36 sustained outages (300% higher than the average of the prior 10 years). This illustrates the intensity of the April 6th-7th storm event.

The following seven outages were the top contributing factors to the higher CAIDI value:

- Jarvis 1110 circuit – due to a tree falling into the line.
- Mt. Eden 1109 circuit – due to a tree branch falling into the line.
- Mt. Eden 1103 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Castro Valley 1107 circuit – due to a tree falling into the line.
- Newark 2103 circuit – due to a tree branch falling into the line.
- San Ramon 2107 circuit – two outages; one due to a failed overhead conductor and the second due to a failed overhead switch.

These seven outages contributed 93.4 minutes to the April 6-7, 2017 overall CAIDI performance.

7.7 North Bay CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
NORTH BAY	December 30, 2014	183.5	39
NORTH BAY	February 6-8, 2015	254.1	41
NORTH BAY	April 6, 2015	124.0	1
NORTH BAY	June 8, 2015	245.7	8
NORTH BAY	July 18-19, 2015	161.4	3
NORTH BAY	December 13, 2015	146.4	20
NORTH BAY	December 24, 2015	230.2	4
NORTH BAY	February 17, 2016	102.9	19
NORTH BAY	March 5, 2016	224.6	46
NORTH BAY	October 14, 2016	180.7	24
	Average of 10 excludable major events	203.0	22
NORTH BAY	Apr 6-7, 2017	272.7	23
	% Difference	34.4%	1%

Table 93 – North Bay Historical Performance

As indicated in Table 93, the North Bay division CAIDI value of 272.7 minutes for the April 6-7, 2017 major event days was 34.4% higher than the 203.0 minutes average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- San Rafael 1108 circuit – due to a tree falling into the line.
- Bolinas 1101 circuit – due to a failed overhead conductor.
- Pueblo 1105 circuit – due to a failed overhead conductor.
- Silverado 2105 circuit – due to a tree branch falling into the line.
- Alto 2105 circuit – due to a failed jumper.

These five outages contributed 76.0 minutes to the April 6-7, 2017 overall CAIDI performance.

7.8 Peninsula CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
PENINSULA	December 30, 2014	113.4	23
PENINSULA	February 6-8, 2015	158.1	30
PENINSULA	April 6, 2015	216.0	1
PENINSULA	June 8, 2015	69.5	5
PENINSULA	July 18-19, 2015	42.0	3
PENINSULA	December 13, 2015	119.6	20
PENINSULA	December 24, 2015	448.7	3
PENINSULA	February 17, 2016	104.2	17
PENINSULA	March 5, 2016	139.9	34
PENINSULA	October 14, 2016	67.8	24
	Average of 10 excludable major events	123.7	17
PENINSULA	Apr 6-7, 2017	161.5	23
	% Difference	30.5%	33%

Table 94 – Peninsula Historical Performance

As indicated in Table 94, the Peninsula division CAIDI value of 161.5 minutes for the April 6-7, 2017 major event days was 30.5% higher than the 123.7 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 23 for April 6-7, 2017 was 33% higher than the average of the corresponding prior 10 excludable major events of 17. The first day of the storm produced 25 sustained outages (47% higher than the average of the prior 10 years). This illustrates the intensity of the April 6th-7th storm event.

The following four outages were the top contributing factors to the higher CAIDI value:

- Woodside 1101 circuit – due to a tree falling into the line.
- Menlo 1102 circuit – due to tree falling into the line.
- Bell Haven 401 circuit – due to a failed overhead conductor.
- Carolands 403 circuit – due to a tree falling into the line.

These five outages contributed 37.4 minutes to the April 6-7, 2017 overall CAIDI performance.

7.9 Sonoma CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SONOMA	December 30, 2014	84.9	45
SONOMA	February 6-8, 2015	248.5	65
SONOMA	April 6, 2015	117.8	3
SONOMA	June 8, 2015	194.2	7
SONOMA	July 18-19, 2015	71.2	4
SONOMA	December 13, 2015	230.6	34
SONOMA	December 24, 2015	139.8	5
SONOMA	February 17, 2016	55.9	3
SONOMA	March 5, 2016	168.2	53
SONOMA	October 14, 2016	140.1	9
	Average of 10 excludable major events	190.5	28
SONOMA	Apr 6-7, 2017	445.0	22
	% Difference	133.6%	-21%

Table 95 – Sonoma Historical Performance

As indicated in Table 95, the Sonoma division CAIDI value of 445.0 minutes for the April 6-7, 2017 major event days was 133.6% higher than the 190.5 minutes average of the prior 10 weather-related excludable major events.

The following four outages were the top contributing factors to the higher CAIDI value:

- Fort Ross 1121 circuit – two outages; both due to a trees falling into the line.
- Santa Rosa A 1104 circuit – due to a failed overhead conductor.
- Bellevue 2103 circuit – due to a tree falling into the line.

These four outages contributed 257.4 minutes to the April 6-7, 2017 overall CAIDI performance.

7.10 Yosemite CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
YOSEMITE	December 30, 2014	447.5	23
YOSEMITE	February 6-8, 2015	128.0	20
YOSEMITE	April 6, 2015	111.2	6
YOSEMITE	June 8, 2015	101.4	13
YOSEMITE	July 18-19, 2015	97.2	9
YOSEMITE	December 13, 2015	110.8	15
YOSEMITE	December 24, 2015	75.9	14
YOSEMITE	February 17, 2016	118.1	29
YOSEMITE	March 5, 2016	132.4	18
YOSEMITE	October 14, 2016	118.7	10
	Average of 10 excludable major events	170.0	16
YOSEMITE	Apr 6-7, 2017	520.4	20
	% Difference	206.2%	27%

Table 96 – Yosemite Historical Performance

As indicated in Table 96, the Sonoma division CAIDI value of 520.4 minutes for the April 6-7, 2017 major event days was 206.2% higher than the 170.0 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 20 for April 6-7, 2017 was 27% higher than the average of the corresponding prior 10 excludable major events of 16. The first day of the storm produced 23 sustained outages (44% higher than the average of the prior 10 years). This illustrates the intensity of the April 6th-7th storm event.

The following seven outages were the top contributing factors to the higher CAIDI value:

- Curtis 1703 circuit – two outages; both due to a trees falling into the line.
- Peoria Flat 1705 circuit – due to a tree falling into the line.
- Pinecrest 401 circuit – due to a tree branch falling into the line.
- Bear Valley 2105 circuit – due to a tree falling into the line.
- Miwuk 1701 circuit – due to a tree falling into the line.
- Mariposa 1701 circuit – due to a tree falling into the line.

These seven outages contributed 328.6 minutes to the April 6-7, 2017 overall CAIDI performance.

8. June 18, 2017 Major Event Day

The eighth major event was for June 18, 2017 caused by an early summer heatwave. Table 97 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(June 18, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	April 6-7, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	294.6	130.7%	Yes
CENTRAL COAST	139.0	101.2	72.8%	NO
DE ANZA	137.6	226.6	164.6%	Yes
DIABLO	126.9	371.7	293.0%	Yes
EAST BAY	140.1	405.2	289.3%	Yes
FRESNO	98.2	90.0	91.7%	NO
HUMBOLDT	606.8	290.2	47.8%	NO
KERN	117.6	166.4	141.5%	Yes
LOS PADRES	345.3	108.9	31.5%	NO
MISSION	138.5	421.9	304.7%	Yes
NORTH BAY	203.0	272.7	134.4%	Yes
NORTH VALLEY	436.3	224.1	51.4%	NO
PENINSULA	123.7	161.5	130.5%	Yes
SACRAMENTO	138.8	102.5	73.9%	NO
SAN FRANCISCO	258.7	135.7	52.4%	NO
SAN JOSE	134.9	164.2	121.7%	NO
SIERRA	301.2	233.4	77.5%	NO
SONOMA	190.5	445.0	233.6%	Yes
STOCKTON	188.1	71.8	38.2%	NO
YOSEMITE	170.0	520.4	306.2%	Yes

Table 97 – June 18, 2017 CAIDI Performance

8.1 De Anza CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DE ANZA	December 11-12, 2014	192.7	13
DE ANZA	December 30, 2014	235.2	17
DE ANZA	February 6-8, 2015	104.8	20
DE ANZA	April 6, 2015	46.4	2
DE ANZA	June 8, 2015	395.8	9
DE ANZA	July 18-19, 2015	146.7	2
DE ANZA	December 13, 2015	71.7	8
DE ANZA	February 17, 2016	138.5	26
DE ANZA	March 5, 2016	141.4	34
DE ANZA	October 14, 2016	73.9	11
	Average of 10 excludable major events	137.6	14
DE ANZA	June 18, 2017	399.9	23
	% Difference	190.6%	63%

Table 98 – De Anza Historical Performance

As indicated in Table 98, the De Anza division CAIDI value of 399.9 minutes for the June 18, 2017 major event day was 190.6% higher than the 137.6 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 23 for June 18, 2017 was 63% higher than the average of the corresponding prior 10 excludable major events of 14. This illustrates the intensity of the June 18th heat-storm event.

The following seven outages were the top contributing factors to the higher CAIDI value:

- Saratoga 1109 circuit – due to an overloaded overhead transformer.
- Saratoga 1106 circuit – due to a failed overhead transformer bushing.
- Saratoga 1104 circuit – due to a failed overhead transformer.
- Vasona 1103 circuit – two outages; one due to a failed overhead transformer and the second due to a failed underground transformer.
- Saratoga 1108 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Wolfe 1113 circuit – outage of unknown cause (line was patrolled and nothing was found).

These seven outages contributed 126.2 minutes to the June 18, 2017 overall CAIDI performance.

8.2 Fresno CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
FRESNO	December 30, 2014	392.1	4
FRESNO	February 6-8, 2015	100.8	10
FRESNO	April 6, 2015	13.8	8
FRESNO	June 8, 2015	67.3	18
FRESNO	July 18-19, 2015	119.0	73
FRESNO	December 13, 2015	23.7	18
FRESNO	December 24, 2015	21.8	9
FRESNO	February 17, 2016	83.8	25
FRESNO	March 5, 2016	60.9	11
FRESNO	October 14, 2016	116.7	5
	Average of 10 excludable major events	98.2	23
FRESNO	June 18, 2017	128.5	23
	% Difference	30.9%	2%

Table 99 – Fresno Historical Performance

As indicated in Table 99, the Fresno division CAIDI value of 128.5 minutes for the June 18, 2017 major event day was 30.9% higher than the 98.2 minutes average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- Figarden 2108 circuit – due to a failed underground connector / splice.
- Woodward 2106 circuit – due to a failed elbow.
- Lemoore 1103 circuit – two outages; one was of unknown cause (line was patrolled and nothing was found) and the second due to a failed underground transformer.
- Shepherd 2110 circuit – due to a failed underground switch.
- Wolfe 1113 circuit – outage of unknown cause (line was patrolled and nothing was found).

These five outages contributed 30.2 minutes to the June 18, 2017 overall CAIDI performance.

8.3 Mission CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
MISSION	December 30, 2014	135.7	31
MISSION	February 6-8, 2015	51.5	4
MISSION	April 6, 2015	74.3	2
MISSION	June 8, 2015	159.7	12
MISSION	July 18-19, 2015	250.2	2
MISSION	December 13, 2015	176.0	6
MISSION	December 24, 2015	165.5	2
MISSION	February 17, 2016	131.3	8
MISSION	March 5, 2016	209.3	6
MISSION	October 14, 2016	174.5	29
	Average of 10 excludable major events	138.5	9
MISSION	June 18, 2017	255.6	23
	% Difference	84.6%	167%

Table 100 – Mission Historical Performance

As indicated in Table 100, the Mission division CAIDI value of 255.6 minutes for the June 18, 2017 major event day was 84.6% higher than the 138.5 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 23 for June 18, 2017 was 167% higher than the average of the corresponding prior 10 excludable major events of 9. This illustrates the intensity of the June 18th heat-storm event.

The following five outages were the top contributing factors to the higher CAIDI value:

- Tassajara 2113 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Fremont 1109 circuit – due to a failed overhead transformer.
- Las Positas 2109 circuit – due to a failed underground connector / splice.
- Vineyard 2105 circuit – due to a failed underground connector / splice.
- Vineyard 2108 circuit – due to a failed underground connector / splice.

These five outages contributed 84.8 minutes to the June 18, 2017 overall CAIDI performance.

8.4 San Francisco CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SAN FRANCISCO	December 3, 2014	99.1	10
SAN FRANCISCO	December 11-12, 2014	309.5	11
SAN FRANCISCO	December 30, 2014	73.3	9
SAN FRANCISCO	February 6-8, 2015	135.1	6
SAN FRANCISCO	July 18-19, 2015	108.3	2
SAN FRANCISCO	December 13, 2015	144.6	8
SAN FRANCISCO	December 24, 2015	242.4	2
SAN FRANCISCO	February 17, 2016	21.6	2
SAN FRANCISCO	March 5, 2016	331.1	3
SAN FRANCISCO	October 14, 2016	48.1	3
	Average of 10 excludable major events	258.7	6
SAN FRANCISCO	June 18, 2017	324.0	1
	% Difference	25.2%	-83%

Table 101 – San Francisco Historical Performance

As indicated in Table 101, the San Francisco division CAIDI value of 324.0 minutes for the June 18, 2017 major event day was 25.2% higher than the 258.7 minutes average of the prior 10 weather-related excludable major events.

The following outage was experienced on June 18th that produced the higher CAIDI value:

- Station H 1105 circuit – due to a failed overhead transformer.

This outage contributed 324.0 minutes to the June 18, 2017 overall CAIDI performance.

8.5 San Jose CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SAN JOSE	December 30, 2014	161.1	41
SAN JOSE	February 6-8, 2015	123.5	8
SAN JOSE	April 6, 2015	94.8	1
SAN JOSE	June 8, 2015	139.2	15
SAN JOSE	July 18-19, 2015	106.6	4
SAN JOSE	December 13, 2015	77.2	21
SAN JOSE	December 24, 2015	100.0	3
SAN JOSE	February 17, 2016	79.3	14
SAN JOSE	March 5, 2016	162.4	10
SAN JOSE	October 14, 2016	124.3	6
	Average of 10 excludable major events	134.9	11
SAN JOSE	June 18, 2017	295.2	38
	% Difference	118.8%	245%

Table 102 – San Jose Historical Performance

As indicated in Table 102, the San Jose division CAIDI value of 295.2 minutes for the June 18, 2017 major event day was 118.8% higher than the 134.9 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 38 for June 18, 2017 was 245% higher than the average of the corresponding prior 10 excludable major events of 11. This illustrates the intensity of the June 18th heat-storm event.

The following four outages were the top contributing factors to the higher CAIDI value:

- Hicks 1111 circuit – due to a failed fuse cutout.
- Swift 2107 circuit – due to a failed overhead transformer.
- Evergreen 2101 circuit – due to an underground cable failure.
- San Jose A 1110 circuit – due to a failed overhead transformer.

These four outages contributed 143.4 minutes to the June 18, 2017 overall CAIDI performance.

8.6 Yosemite CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
YOSEMITE	December 30, 2014	447.5	23
YOSEMITE	February 6-8, 2015	128.0	20
YOSEMITE	April 6, 2015	111.2	6
YOSEMITE	June 8, 2015	101.4	13
YOSEMITE	July 18-19, 2015	97.2	9
YOSEMITE	December 13, 2015	110.8	15
YOSEMITE	December 24, 2015	75.9	14
YOSEMITE	February 17, 2016	118.1	29
YOSEMITE	March 5, 2016	132.4	18
YOSEMITE	October 14, 2016	118.7	10
	Average of 10 excludable major events	170.0	16
YOSEMITE	June 18, 2017	231.5	15
	% Difference	36.2%	-5%

Table 103 – Yosemite Historical Performance

As indicated in Table 103, the Yosemite division CAIDI value of 231.5 minutes for the June 18, 2017 major event day was 36.2% higher than the 170.0 minutes average of the prior 10 weather-related excludable major events.

The following two outages were the top contributing factors to the higher CAIDI value:

- Cottle 1701 circuit – due to a failed underground transformer.
- Spring Gap 1701 circuit – due to lightning (six failed overhead transformers).

These two outages contributed 61.7 minutes to the June 18, 2017 overall CAIDI performance.

9. September 3, 2017 Major Event Day

The ninth major event was for September 3, 2017 caused by a summer heatwave. Table 104 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(September 3, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	September 3, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	193.4	85.8%	NO
CENTRAL COAST	139.0	306.5	220.5%	Yes
DE ANZA	137.6	347.3	252.3%	Yes
DIABLO	126.9	119.5	94.2%	NO
EAST BAY	140.1	106.7	76.2%	NO
FRESNO	98.2	115.1	117.2%	NO
HUMBOLDT	606.8	211.0	34.8%	NO
KERN	117.6	283.7	241.2%	Yes
LOS PADRES	345.3	469.4	136.0%	Yes
MISSION	138.5	85.5	61.7%	NO
NORTH BAY	203.0	295.5	145.6%	Yes
NORTH VALLEY	436.3	95.7	21.9%	NO
PENINSULA	123.7	203.4	164.4%	Yes
SACRAMENTO	138.8	67.0	48.3%	NO
SAN FRANCISCO	258.7	0.0	0.0%	NO
SAN JOSE	134.9	165.0	122.3%	NO
SIERRA	301.2	30.9	10.3%	NO
SONOMA	190.5	113.0	59.3%	NO
STOCKTON	188.1	98.3	52.2%	NO
YOSEMITE	170.0	50.3	29.6%	NO

Table 104 – September 3, 2017 CAIDI Performance

9.1 Central Coast CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	September 3, 2017	306.5	8
	% Difference	120.5%	-78%

Table 105 – Central Coast Historical Performance

As indicated in Table 105, the Central Coast division CAIDI value of 306.5 minutes for the September 3, 2017 major event day was 120.5% higher than the 139.0 minutes average of the prior 10 weather-related excludable major events.

The following four outages were the top contributing factors to the higher CAIDI value:

- Point Moretti 1101 circuit – due to a tree falling branch into the line.
- Green Valley 2102 circuit – due to an underground cable failure.
- Camp Evers 2105 circuit – due to a failed overhead transformer.
- Rob Roy 2105 circuit – due to a failed overhead conductor.

These four outages contributed 164.4 minutes to the September 3, 2017 overall CAIDI performance.

9.2 De Anza CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DE ANZA	December 11-12, 2014	192.7	13
DE ANZA	December 30, 2014	235.2	17
DE ANZA	February 6-8, 2015	104.8	20
DE ANZA	April 6, 2015	46.4	2
DE ANZA	June 8, 2015	395.8	9
DE ANZA	July 18-19, 2015	146.7	2
DE ANZA	December 13, 2015	71.7	8
DE ANZA	February 17, 2016	138.5	26
DE ANZA	March 5, 2016	141.4	34
DE ANZA	October 14, 2016	73.9	11
	Average of 10 excludable major events	137.6	14
DE ANZA	September 3, 2017	347.3	9
	% Difference	152.3%	-36%

Table 106 – De Anza Historical Performance

As indicated in Table 106, the De Anza division CAIDI value of 347.3 minutes for the September 3, 2017 major event day was 152.3% higher than the 137.6 minutes average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- El Patio 1103 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Saratoga 1109 circuit – three outages; all due to failed overhead transformers.
- Vasona 1101 circuit – due to a tree branch falling into the line.

These five outages contributed 187.7 minutes to the September 3, 2017 overall CAIDI performance.

9.3 Kern CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
KERN	December 30, 2014	20.0	6
KERN	February 6-8, 2015	67.9	4
KERN	April 6, 2015	66.9	3
KERN	June 8, 2015	325.4	8
KERN	July 18-19, 2015	163.9	44
KERN	December 13, 2015	144.1	5
KERN	December 24, 2015	119.0	1
KERN	February 17, 2016	271.6	4
KERN	March 5, 2016	271.7	4
KERN	October 14, 2016	18.4	4
	Average of 10 excludable major events	117.6	10
KERN	September 3, 2017	283.7	72
	% Difference	141.2%	599%

Table 107 – Kern Historical Performance

As indicated in Table 107, the Kern division CAIDI value of 283.7 minutes for the September 3, 2017 major event day was 141.2% higher than the 117.6 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 72 for September 3, 2017 was 599% higher than the average of the corresponding prior 10 excludable major events of 10. This illustrates the intensity of the September 3rd heat-storm event had on the division.

The following eight outages were the top contributing factors to the higher CAIDI value:

- Magunden 2108 circuit – due to a failed overhead conductor.
- Stockdale 2105 circuit – debris was picked up by the wind and flew into the line.
- Stockdale 1109 circuit – due to a tree falling into the line.
- Stockdale 2113 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Ganso 1104 circuit – due to a tree branch falling into the line.
- Rio Bravo 1106 circuit – due to a failed overhead connector / splice.
- Elk Hills 1104 circuit - outage of unknown cause (line was patrolled and nothing was found).
- Goose Lake 2104 circuit – due to a broken pole.

These eight outages contributed 34.8 minutes to the September 3, 2017 overall CAIDI performance.

9.4 Los Padres CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
LOS PADRES	December 30, 2014	86.0	1
LOS PADRES	February 6-8, 2015	95.0	5
LOS PADRES	April 6, 2015	169.8	2
LOS PADRES	June 8, 2015	260.3	3
LOS PADRES	July 18-19, 2015	437.7	100
LOS PADRES	December 13, 2015	291.3	6
LOS PADRES	December 24, 2015	542.0	1
LOS PADRES	February 17, 2016	214.3	10
LOS PADRES	March 5, 2016	135.2	6
LOS PADRES	October 14, 2016	32.6	5
	Average of 10 excludable major events	345.3	19
LOS PADRES	September 3, 2017	469.4	18
	% Difference	36.0%	-6%

Table 108 – Los Padres Historical Performance

As indicated in Table 108, the Los Padres division CAIDI value of 469.4 minutes for the September 3, 2017 major event day was 36.0% higher than the 345.3 minutes average of the prior 10 weather-related excludable major events.

The following outage was the top contributing factors to the higher CAIDI value:

- Sisquoc 1103 circuit – outage of unknown cause (line was patrolled and nothing was found).

This outage contributed 207.4 minutes to the September 3, 2017 overall CAIDI performance.

9.5 North Bay CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
NORTH BAY	December 30, 2014	183.5	39
NORTH BAY	February 6-8, 2015	254.1	41
NORTH BAY	April 6, 2015	124.0	1
NORTH BAY	June 8, 2015	245.7	8
NORTH BAY	July 18-19, 2015	161.4	3
NORTH BAY	December 13, 2015	146.4	20
NORTH BAY	December 24, 2015	230.2	4
NORTH BAY	February 17, 2016	102.9	19
NORTH BAY	March 5, 2016	224.6	46
NORTH BAY	October 14, 2016	180.7	24
	Average of 10 excludable major events	203.0	22
NORTH BAY	September 3, 2017	295.5	7
	% Difference	45.6%	-69%

Table 109 – North Bay Historical Performance

As indicated in Table 109, the North Bay division CAIDI value of 295.5 minutes for the September 3, 2017 major event day was 45.6% higher than the 203.0 minutes average of the prior 10 weather-related excludable major events.

The following outage was the top contributing factors to the higher CAIDI value:

- Sausalito 1101 circuit – due to a broken pole.

This outage contributed 162.4 minutes to the September 3, 2017 overall CAIDI performance.

9.6 Peninsula CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
PENINSULA	December 30, 2014	113.4	23
PENINSULA	February 6-8, 2015	158.1	30
PENINSULA	April 6, 2015	216.0	1
PENINSULA	June 8, 2015	69.5	5
PENINSULA	July 18-19, 2015	42.0	3
PENINSULA	December 13, 2015	119.6	20
PENINSULA	December 24, 2015	448.7	3
PENINSULA	February 17, 2016	104.2	17
PENINSULA	March 5, 2016	139.9	34
PENINSULA	October 14, 2016	67.8	24
	Average of 10 excludable major events	123.7	17
PENINSULA	September 3, 2017	203.4	6
	% Difference	64.4%	-65%

Table 110 – Peninsula Historical Performance

As indicated in Table 110, the Peninsula division CAIDI value of 203.4 minutes for the September 3, 2017 major event day was 64.4% higher than the 123.7 minutes average of the prior 10 weather-related excludable major events.

The following three outages were the top contributing factors to the higher CAIDI value:

- Woodside 1101 circuit – due to a tree branch falling into the line.
- Bay Meadows 1106 circuit – due to a failed underground connector / splice.
- Menlo 1102 circuit – due to a tree falling into the line.

These three outages contributed 76.7 minutes to the September 3, 2017 overall CAIDI performance.

10. September 11, 2017 Major Event Day

The tenth major event was for September 11, 2017 caused by a lightning storm. Table 111 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(September 11, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	September 11, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	160.0	71.0%	NO
CENTRAL COAST	139.0	227.0	163.3%	Yes
DE ANZA	137.6	175.0	127.2%	Yes
DIABLO	126.9	106.7	84.1%	NO
EAST BAY	140.1	93.4	66.7%	NO
FRESNO	98.2	182.5	185.9%	Yes
HUMBOLDT	606.8	108.9	17.9%	NO
KERN	117.6	154.4	131.3%	Yes
LOS PADRES	345.3	181.7	52.6%	NO
MISSION	138.5	144.5	104.4%	NO
NORTH BAY	203.0	262.8	129.5%	Yes
NORTH VALLEY	436.3	69.5	15.9%	NO
PENINSULA	123.7	154.7	125.0%	Yes
SACRAMENTO	138.8	297.3	214.2%	Yes
SAN FRANCISCO	258.7	207.7	80.3%	NO
SAN JOSE	134.9	75.9	56.3%	NO
SIERRA	301.2	102.1	33.9%	NO
SONOMA	190.5	388.0	203.7%	Yes
STOCKTON	188.1	62.6	33.3%	NO
YOSEMITE	170.0	244.3	143.7%	Yes

Table 111 – September 11, 2017 CAIDI Performance

10.1 Central Coast CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	September 11, 2017	227.0	68
	% Difference	63.3%	87%

Table 112 – Central Coast Historical Performance

As indicated in Table 112, the Central Coast division CAIDI value of 227.0 minutes for the September 11, 2017 major event day was 63.3% higher than the 139.0 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 68 for September 11, 2017 was 87% higher than the average of the corresponding prior 10 excludable major events of 36. This illustrates the intensity of the September 11th event had on the division.

The following six outages were the top contributing factors to the higher CAIDI value:

- Green Valley – Watsonville 60 kV line – a switch opened at Erta Substation due to lightning.
- Watsonville 2101 circuit – an overhead transformer failed due to lightning.
- Watsonville 401 circuit – due to lightning that brought down an overhead conductor.
- Rob Roy 2104 circuit – due to a failed insulator (associated with lightning).
- Green Valley 2103 – two outages; both due to failed overhead transformers that were struck by lightning.

These six outages contributed 86.7 minutes to the September 11, 2017 overall CAIDI performance.

10.2 De Anza CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DE ANZA	December 11-12, 2014	192.7	13
DE ANZA	December 30, 2014	235.2	17
DE ANZA	February 6-8, 2015	104.8	20
DE ANZA	April 6, 2015	46.4	2
DE ANZA	June 8, 2015	395.8	9
DE ANZA	July 18-19, 2015	146.7	2
DE ANZA	December 13, 2015	71.7	8
DE ANZA	February 17, 2016	138.5	26
DE ANZA	March 5, 2016	141.4	34
DE ANZA	October 14, 2016	73.9	11
	Average of 10 excludable major events	137.6	14
DE ANZA	September 11, 2017	175.0	32
	% Difference	27.2%	127%

Table 113 – De Anza Historical Performance

As indicated in Table 113, the De Anza division CAIDI value of 175.0 minutes for the September 11, 2017 major event day was 27.2% higher than the 137.6 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 32 for September 11, 2017 was 127% higher than the average of the corresponding prior 10 excludable major events of 14. This illustrates the intensity of the September 11th event had on the division.

The following three outages were the top contributing factors to the higher CAIDI value:

- Vasona 1101 circuit – due to a tree falling into the line.
- Vasona 1104 circuit – due to a tree branch falling into the line.
- El Patio 1108 circuit – due to a tree falling into the line.

These three outages contributed 40.6 minutes to the September 11, 2017 overall CAIDI performance.

10.3 Fresno CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
FRESNO	December 30, 2014	392.1	4
FRESNO	February 6-8, 2015	100.8	10
FRESNO	April 6, 2015	13.8	8
FRESNO	June 8, 2015	67.3	18
FRESNO	July 18-19, 2015	119.0	73
FRESNO	December 13, 2015	23.7	18
FRESNO	December 24, 2015	21.8	9
FRESNO	February 17, 2016	83.8	25
FRESNO	March 5, 2016	60.9	11
FRESNO	October 14, 2016	116.7	5
	Average of 10 excludable major events	98.2	23
FRESNO	September 11, 2017	182.5	49
	% Difference	85.9%	117%

Table 114 – Fresno Historical Performance

As indicated in Table 114, the Fresno division CAIDI value of 182.5 minutes for the September 11, 2017 major event day was 85.9% higher than the 98.2 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 49 for September 11, 2017 was 117% higher than the average of the corresponding prior 10 excludable major events of 23. This illustrates the intensity of the September 11th event had on the division.

The following seven outages were the top contributing factors to the higher CAIDI value:

- Kingsburg 1116 circuit – due to a broken pole.
- Camden 1103 circuit – due to a tree branch falling into the line.
- Caruthers 1104 circuit – due to a failed overhead conductor (lightning associated).
- Stroud Substation – due to a broken transmission insulator that services the station.
- Cantua 1101 circuit – due to multiple broken poles (lightning associated).
- Stroud 1101 circuit – due to broken pole.
- Parlier 1104 circuit – due to failed overhead conductor (lightning associated).

These seven outages contributed 60.2 minutes to the September 11, 2017 overall CAIDI performance.

10.4 Kern CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
KERN	December 30, 2014	20.0	6
KERN	February 6-8, 2015	67.9	4
KERN	April 6, 2015	66.9	3
KERN	June 8, 2015	325.4	8
KERN	July 18-19, 2015	163.9	44
KERN	December 13, 2015	144.1	5
KERN	December 24, 2015	119.0	1
KERN	February 17, 2016	271.6	4
KERN	March 5, 2016	271.7	4
KERN	October 14, 2016	18.4	4
	Average of 10 excludable major events	117.6	10
KERN	September 11, 2017	154.4	18
	% Difference	31.3%	75%

Table 115 – Kern Historical Performance

As indicated in Table 115, the Kern division CAIDI value of 154.4 minutes for the September 11, 2017 major event day was 31.3% higher than the 117.6 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 18 for September 11, 2017 was 75% higher than the average of the corresponding prior 10 excludable major events of 10. This illustrates the intensity of the September 11th event had on the division.

The following six outages were the top contributing factors to the higher CAIDI value:

- Cuyama 1103 circuit – two outages; the first is due to an outage of unknown cause and the second is due to failed overhead transformer (lightning associated).
- Bakersfield 2109 circuit – due to a failed overhead conductor.
- Wellfield 1102 circuit – due to an outage of unknown cause (line was patrolled and nothing was found).
- McKittrick 1101 circuit – due to failed overhead conductor (lightning associated).
- Weedpatch 1106 circuit – due to a failed overhead transformer.

These six outages contributed 25.5 minutes to the September 11, 2017 overall CAIDI performance.

10.5 North Bay CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
NORTH BAY	December 30, 2014	183.5	39
NORTH BAY	February 6-8, 2015	254.1	41
NORTH BAY	April 6, 2015	124.0	1
NORTH BAY	June 8, 2015	245.7	8
NORTH BAY	July 18-19, 2015	161.4	3
NORTH BAY	December 13, 2015	146.4	20
NORTH BAY	December 24, 2015	230.2	4
NORTH BAY	February 17, 2016	102.9	19
NORTH BAY	March 5, 2016	224.6	46
NORTH BAY	October 14, 2016	180.7	24
	Average of 10 excludable major events	203.0	22
NORTH BAY	September 11, 2017	262.8	9
	% Difference	29.5%	-60%

Table 116 – North Bay Historical Performance

As indicated in Table 116, the North Bay division CAIDI value of 262.8 minutes for the September 11, 2017 major event day was 29.5% higher than the 203.0 minutes average of the prior 10 weather-related excludable major events.

The following two outages were the top contributing factors to the higher CAIDI value:

- Bahia 1103 circuit – due to an underground cable failure.
- Parkway 1103 circuit – due to a failed underground transformer.

These two outages contributed 89.2 minutes to the September 11, 2017 overall CAIDI performance.

10.6 Peninsula CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
PENINSULA	December 30, 2014	113.4	23
PENINSULA	February 6-8, 2015	158.1	30
PENINSULA	April 6, 2015	216.0	1
PENINSULA	June 8, 2015	69.5	5
PENINSULA	July 18-19, 2015	42.0	3
PENINSULA	December 13, 2015	119.6	20
PENINSULA	December 24, 2015	448.7	3
PENINSULA	February 17, 2016	104.2	17
PENINSULA	March 5, 2016	139.9	34
PENINSULA	October 14, 2016	67.8	24
	Average of 10 excludable major events	123.7	17
PENINSULA	September 11, 2017	154.7	44
	% Difference	25.0%	155%

Table 117 – Peninsula Historical Performance

As indicated in Table 117, the Peninsula division CAIDI value of 154.7 minutes for the September 11, 2017 major event day was 25.0% higher than the 123.7 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 44 for September 11, 2017 was 155% higher than the average of the corresponding prior 10 excludable major events of 17. This illustrates the intensity of the September 11th event had on the division.

The following three outages were the top contributing factors to the higher CAIDI value:

- San Mateo 2101 circuit – due to an overhead transformer failure (lightning associated).
- Bay Meadows 1102 circuit – due to a burnt pole-top and cross-arm.
- East Grand 1108 circuit – due to a failed overhead conductor (lightning associated).

These three outages contributed 28.9 minutes to the September 11, 2017 overall CAIDI performance.

10.7 Sacramento CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SACRAMENTO	December 30, 2014	91.1	34
SACRAMENTO	February 6-8, 2015	132.0	19
SACRAMENTO	April 6, 2015	9.8	4
SACRAMENTO	June 8, 2015	178.9	18
SACRAMENTO	July 18-19, 2015	418.6	2
SACRAMENTO	December 13, 2015	142.3	58
SACRAMENTO	December 24, 2015	140.4	6
SACRAMENTO	February 17, 2016	115.9	23
SACRAMENTO	March 5, 2016	217.5	55
SACRAMENTO	October 14, 2016	126.4	32
	Average of 10 excludable major events	138.8	24
SACRAMENTO	September 11, 2017	297.3	7
	% Difference	114.2%	-71%

Table 118 – Sacramento Historical Performance

As indicated in Table 118, the Sacramento division CAIDI value of 297.3 minutes for the September 11, 2017 major event day was 114.2% higher than the 138.8 minutes average of the prior 10 weather-related excludable major events.

The following outage was the top contributing factor to the higher CAIDI value:

- Cordelia 1104 circuit – due to a broken pole.

This outage contributed 194.2 minutes to the September 11, 2017 overall CAIDI performance.

10.8 Sonoma CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SONOMA	December 30, 2014	84.9	45
SONOMA	February 6-8, 2015	248.5	65
SONOMA	April 6, 2015	117.8	3
SONOMA	June 8, 2015	194.2	7
SONOMA	July 18-19, 2015	71.2	4
SONOMA	December 13, 2015	230.6	34
SONOMA	December 24, 2015	139.8	5
SONOMA	February 17, 2016	55.9	3
SONOMA	March 5, 2016	168.2	53
SONOMA	October 14, 2016	140.1	9
	Average of 10 excludable major events	190.5	28
SONOMA	September 11, 2017	388.0	7
	% Difference	103.7%	-75%

Table 119 – Sonoma Historical Performance

As indicated in Table 119, the Sonoma division CAIDI value of 388.0 minutes for the September 11, 2017 major event day was 103.7% higher than the 190.5 minutes average of the prior 10 weather-related excludable major events.

The following two outages were the top contributing factor to the higher CAIDI value:

- Lakeville 1102 circuit – due to a car-pole accident.
- Sonoma 1103 circuit – due to tree branches into the lines.

These two outages contributed 256.4 minutes to the September 11, 2017 overall CAIDI performance.

10.9 Yosemite CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
YOSEMITE	December 30, 2014	447.5	23
YOSEMITE	February 6-8, 2015	128.0	20
YOSEMITE	April 6, 2015	111.2	6
YOSEMITE	June 8, 2015	101.4	13
YOSEMITE	July 18-19, 2015	97.2	9
YOSEMITE	December 13, 2015	110.8	15
YOSEMITE	December 24, 2015	75.9	14
YOSEMITE	February 17, 2016	118.1	29
YOSEMITE	March 5, 2016	132.4	18
YOSEMITE	October 14, 2016	118.7	10
	Average of 10 excludable major events	170.0	16
YOSEMITE	September 11, 2017	244.3	25
	% Difference	43.7%	59%

Table 120 – Yosemite Historical Performance

As indicated in Table 120, the Yosemite division CAIDI value of 244.3 minutes for the September 11, 2017 major event day was 43.7% higher than the 170.0 minutes average of the prior 10 weather-related excludable major events.

The following outage was the top contributing factor to the higher CAIDI value:

- Mendota 1103 circuit – due to a broken pole.

This outage contributed 93.3 minutes to the September 11, 2017 overall CAIDI performance.

11. October 8-9, 2017 Major Event Day

The eleventh major event was for October 8-9, 2017 caused by wildfires. Table 121 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(October 8-9, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	October 8-9, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	2384.6	1058.1%	Yes
CENTRAL COAST	139.0	329.0	236.7%	Yes
DE ANZA	137.6	147.2	106.9%	NO
DIABLO	126.9	101.4	79.9%	NO
EAST BAY	140.1	209.4	149.5%	Yes
FRESNO	98.2	94.2	96.0%	NO
HUMBOLDT	606.8	1526.2	251.5%	Yes
KERN	117.6	144.4	122.7%	NO
LOS PADRES	345.3	141.6	41.0%	NO
MISSION	138.5	84.1	60.7%	NO
NORTH BAY	203.0	2974.8	1465.7%	Yes
NORTH VALLEY	436.3	510.5	117.0%	NO
PENINSULA	123.7	96.8	78.2%	NO
SACRAMENTO	138.8	325.2	234.3%	Yes
SAN FRANCISCO	258.7	279.0	107.8%	NO
SAN JOSE	134.9	147.3	109.2%	NO
SIERRA	301.2	941.9	312.7%	Yes
SONOMA	190.5	5432.2	2851.8%	Yes
STOCKTON	188.1	145.8	77.5%	NO
YOSEMITE	170.0	25.3	14.9%	NO

Table 121 – October 8-9, 2017 CAIDI Performance

11.1 System CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SYSTEM	December 30, 2014	202.6	643
SYSTEM	February 6-8, 2015	395.4	540
SYSTEM	April 6, 2015	193.5	85
SYSTEM	June 8, 2015	122.6	182
SYSTEM	July 18-19, 2015	169.4	282
SYSTEM	December 13, 2015	127.7	523
SYSTEM	December 24, 2015	344.5	135
SYSTEM	February 17, 2016	144.6	380
SYSTEM	March 5, 2016	176.4	620
SYSTEM	October 14, 2016	152.3	326
	Average of 10 excludable major events	225.4	391
SYSTEM	October 8-9, 2017	2,384.6	483
	% Difference	958.1%	24%

Table 122 – System Historical Performance

As indicated in Table 122, the system CAIDI value of 2,384.6 minutes for the October 8-9, 2017 major events were 958.1% higher than the 225.4 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 483 for October 8-9, 2017 was 24% higher than the average of the corresponding prior 10 excludable major events of 391. This illustrates the intensity of the October 8th-9th event had on the system.

The following outages were the top contributing factors to the higher CAIDI value:

Wildfire Related:

- Wildfires – wildfire outages were approximately 90% of the total outages for this two day event and contributed 1,365.6 minutes to the overall October 8-9, 2017 overall CAIDI.

Top Equipment Related Outages:

- Lucerne 1106 circuit – due to a failed overhead conductor.
- Calistoga 1101 circuit – four outages; one due to a failed overhead conductor and three due to broken poles.
- Pueblo 1104 circuit – two outages; one due to a failed overhead conductor and the second due to a failed underground transformer.
- Calistoga 1102 circuit – two outages; one due to a failed overhead conductor and the other to due to failed overhead connector / splice.
- Monticello 1101 circuit – due to pole fire.
- Napa 1112 circuit – due to a broken pole.
- Fulton 1107 circuit – two outages; one due to a failed overhead conductor and the second to a broken insulator.
- Santa Rosa A 1105 circuit – due to a failed overhead conductor.
- Monroe 2107 circuit – due to a broken pole.
- Dunbar 1103 circuit – due to pole fire.

Top Vegetation Related:

- Silverado 2104 – tree branch fell into the line.
- Pueblo 2103 circuit – due to a tree falling into the line.
- Santa Rosa A 1106 circuit – due to a tree falling into the line.
- Dunbar 1101 circuit – due to a tree falling into the line.
- Geyserville 1102 circuit – due to a tree falling into the line.
- Rincon 1104 circuit – due to a tree falling into the line.
- Sonoma 1105 circuit - due to a tree falling into the line.
- Bellevue 2103 circuit - due to a tree falling into the line.
- Monroe 1104 circuit - due to a tree falling into the line.

Top Outages of Unknown Cause:

- Pueblo 1104 circuit – line was patrolled and nothing was found.
- Monticello 1101 circuit – (3 outages) line was patrolled and nothing was found.
- Calistoga 1101 circuit
- Silverado 2103 circuit – line was patrolled and nothing was found.
- Rincon 1101 circuit – line was patrolled and nothing was found.
- Dunbar 1102 circuit – line was patrolled and nothing was found.

The remaining outages (in addition to those notes as Wildfire Related) contributed an additional 738.6 minutes to the October 8-9, 2017 overall CAIDI performance.

11.1 Central Coast CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	October 8-9, 2017	329.0	7
	% Difference	136.7%	-81%

Table 123 – Central Coast Historical Performance

As indicated in Table 123, the Central Coast division CAIDI value of 329.0 minutes for the October 8-9, 2017 major events were 136.7% higher than the 139.0 minutes average of the prior 10 weather-related excludable major events.

The following three outages were the top contributing factors to the higher CAIDI value:

- Rob Roy 2104 circuit – due to a broken insulator.
- Camp Evers 2106 circuit – due to a tree falling into the line.
- Camp Evers 2105 circuit – outage of unknown cause (line was patrolled and nothing was found).

These three outages contributed 211.8 minutes to the October 8-9, 2017 overall CAIDI performance.

11.2 East Bay CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
EAST BAY	August 24, 2014	50.0	1
EAST BAY	December 3, 2014	46.9	6
EAST BAY	December 11-12, 2014	170.7	16
EAST BAY	December 30, 2014	113.1	24
EAST BAY	February 6-8, 2015	76.3	11
EAST BAY	June 8, 2015	113.9	7
EAST BAY	December 13, 2015	91.1	9
EAST BAY	February 17, 2016	57.5	11
EAST BAY	March 5, 2016	94.7	20
EAST BAY	October 14, 2016	218.2	35
	Average of 10 excludable major events	140.1	14
EAST BAY	October 8-9, 2017	209.4	6
	% Difference	49.5%	-57%

Table 124 – East Bay Historical Performance

As indicated in Table 124, the East Bay division CAIDI value of 209.4 minutes for the October 8-9, 2017 major events were 49.5% higher than the 140.1 minutes average of the prior 10 weather-related excludable major events.

The following six outages were the top contributing factors to the higher CAIDI value:

- Beck Street 401 circuit – outage of unknown cause (line was patrolled and nothing was found).
- Station K 1102 circuit – due to a tree branch falling into the line.
- Edes 1112 circuit – due to a tree branch falling into the line
- Station X 1107 – two outages; both were due tree branches falling into the line.
- Station J 1106 circuit – due to a tree branches into the line.

These six outages contributed 63.9 minutes to the October 8-9, 2017 overall CAIDI performance.

11.3 Humboldt CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
HUMBOLDT	December 30, 2014	205.0	6
HUMBOLDT	February 6-8, 2015	787.7	104
HUMBOLDT	April 6, 2015	433.8	12
HUMBOLDT	June 8, 2015	142.4	6
HUMBOLDT	July 18-19, 2015	252.9	9
HUMBOLDT	December 13, 2015	268.4	109
HUMBOLDT	December 24, 2015	726.8	50
HUMBOLDT	February 17, 2016	64.0	13
HUMBOLDT	March 5, 2016	222.9	53
HUMBOLDT	October 14, 2016	113.9	10
	Average of 10 excludable major events	606.8	45
HUMBOLDT	October 8-9, 2017	1,526.2	38
	% Difference	151.5%	-15%

Table 125 – Humboldt Historical Performance

As indicated in Table 125, the Humboldt division CAIDI value of 1,526.2 minutes for the October 8-9, 2017 major events were 151.5% higher than the 606.8 minutes average of the prior 10 weather-related excludable major events.

The higher CAIDI value was due to the following:

- Wildfires – wildfire outages were approximately 83% of the total outages for this two day event and contributed 1,310.4 minutes to the overall October 8-9, 2017 overall CAIDI.

11.4 North Bay CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
NORTH BAY	December 30, 2014	183.5	39
NORTH BAY	February 6-8, 2015	254.1	41
NORTH BAY	April 6, 2015	124.0	1
NORTH BAY	June 8, 2015	245.7	8
NORTH BAY	July 18-19, 2015	161.4	3
NORTH BAY	December 13, 2015	146.4	20
NORTH BAY	December 24, 2015	230.2	4
NORTH BAY	February 17, 2016	102.9	19
NORTH BAY	March 5, 2016	224.6	46
NORTH BAY	October 14, 2016	180.7	24
	Average of 10 excludable major events	203.0	22
NORTH BAY	October 8-9, 2017	2,974.8	91
	% Difference	1365.7%	308%

Table 126 – North Bay Historical Performance

As indicated in Table 126, the North Bay division CAIDI value of 2,974.8 minutes for the October 8-9, 2017 major events were 1,365.7% higher than the 203.0 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 91 for October 8-9, 2017 was 308% higher than the average of the corresponding prior 10 excludable major events of 22. This illustrates the intensity of the October 8th-9th event had on the division.

The following outages were the top contributing factors to the higher CAIDI value:

Wildfire Related:

- Wildfires – wildfire outages were approximately 53% of the total outages for this two day event.

Top Equipment Related Outages:

- Calistoga 1101 circuit – six outages; one due to a failed overhead conductor and five due to broken poles.
- Pueblo 1102 circuit – due to a broken pole.
- Pueblo 1104 circuit – two outages; one due to a failed overhead conductor and the second due to a failed underground transformer.
- Pueblo 1105 circuit – due to broken pole.
- Calistoga 1102 circuit – two outages; one due to a failed overhead conductor and the other to due to failed overhead connector / splice.
- Monticello 1101 circuit – due to pole fire.
- Napa 1112 circuit – due to a broken pole.

Top Vegetation Related:

- Silverado 2104 – two outages; one due to a tree branch falling into the and the second tree falling into the line.
- Pueblo 2103 circuit – due to a tree falling into the line.

Top Outages of Unknown Cause:

- Pueblo 1104 circuit – line was patrolled and nothing was found.

- Monticello 1101 circuit – (3 outages) line was patrolled and nothing was found.
- Calistoga 1101 circuit
- Silverado 2103 circuit – line was patrolled and nothing was found.

These outages contributed 1,839.9 minutes to the October 8-9, 2017 overall CAIDI performance.

11.5 Sacramento CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SACRAMENTO	December 30, 2014	91.1	34
SACRAMENTO	February 6-8, 2015	132.0	19
SACRAMENTO	April 6, 2015	9.8	4
SACRAMENTO	June 8, 2015	178.9	18
SACRAMENTO	July 18-19, 2015	418.6	2
SACRAMENTO	December 13, 2015	142.3	58
SACRAMENTO	December 24, 2015	140.4	6
SACRAMENTO	February 17, 2016	115.9	23
SACRAMENTO	March 5, 2016	217.5	55
SACRAMENTO	October 14, 2016	126.4	32
	Average of 10 excludable major events	138.8	24
SACRAMENTO	October 8-9, 2017	325.2	61
	% Difference	134.3%	151%

Table 127 – Sacramento Historical Performance

As indicated in Table 127, the Sacramento division CAIDI value of 325.2 minutes for the October 8-9, 2017 major events were 134.3% higher than the 138.8 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 61 for October 8-9, 2017 was 151% higher than the average of the corresponding prior 10 excludable major events of 24. This illustrates the intensity of the October 8th-9th event had on the division.

The higher CAIDI value was due to the following:

- Wildfires – wildfire outages were approximately 33% of the total outages for this two day event and contributed 198.5 minutes to the overall October 8-9, 2017 overall CAIDI.

11.6 Sierra CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SIERRA	December 30, 2014	339.2	103
SIERRA	February 6-8, 2015	489.0	40
SIERRA	April 6, 2015	48.6	2
SIERRA	June 8, 2015	188.9	5
SIERRA	July 18-19, 2015	12.4	3
SIERRA	December 13, 2015	139.2	27
SIERRA	December 24, 2015	293.3	8
SIERRA	February 17, 2016	280.6	76
SIERRA	March 5, 2016	187.8	53
SIERRA	October 14, 2016	113.3	15
	Average of 10 excludable major events	301.2	32
SIERRA	October 8-9, 2017	941.9	30
	% Difference	212.7%	-6%

Table 128 – Sierra Historical Performance

As indicated in Table 128, the Sierra division CAIDI value of 941.9 minutes for the October 8-9, 2017 major events were 212.7% higher than the 301.2 minutes average of the prior 10 weather-related excludable major events.

The higher CAIDI value was due to the following:

- Wildfires – wildfire outages were approximately 17% of the total outages for this two day event and contributed 737.3 minutes to the overall October 8-9, 2017 overall CAIDI.

11.7 Sonoma CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SONOMA	December 30, 2014	84.9	45
SONOMA	February 6-8, 2015	248.5	65
SONOMA	April 6, 2015	117.8	3
SONOMA	June 8, 2015	194.2	7
SONOMA	July 18-19, 2015	71.2	4
SONOMA	December 13, 2015	230.6	34
SONOMA	December 24, 2015	139.8	5
SONOMA	February 17, 2016	55.9	3
SONOMA	March 5, 2016	168.2	53
SONOMA	October 14, 2016	140.1	9
	Average of 10 excludable major events	190.5	28
SONOMA	October 8-9, 2017	5,432.2	156
	% Difference	2751.8%	460%

Table 129 – Sonoma Historical Performance

As indicated in Table 129, the Sonoma division CAIDI value of 5,432.2 minutes for the October 8-9, 2017 major events were 2,751.8% higher than the 190.5 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 156 for October 8-9, 2017 was 460% higher than the average of the corresponding prior 10 excludable major events of 28. This illustrates the intensity of the October 8th-9th event had on the division.

The following outages were the top contributing factors to the higher CAIDI value:

Wildfire Related:

- Wildfires – wildfire outages were approximately 75% of the total outages for this two day event.

Top Equipment Related Outages:

- Fulton 1107 circuit – two outages; one due to a failed overhead conductor and the second to a broken insulator.
- Santa Rosa A 1105 circuit – due to a failed overhead conductor.
- Monroe 2107 circuit – due to a broken pole.
- Dunbar 1103 circuit – due to pole fire.
- Dunbar 1101 circuit – due to a fire damaged pole.

Top Vegetation Related:

- Santa Rosa A 1106 circuit – due to a tree falling into the line.
- Dunbar 1101 circuit – two outages; both due to a tree falling into the line.
- Geyserville 1102 circuit – due to a tree falling into the line.
- Rincon 1104 circuit – two outages; one due to a tree falling into the line and the second due to a tree branch falling into the line.
- Sonoma 1105 circuit - due to a tree falling into the line.
- Bellevue 2103 circuit - due to a tree falling into the line.
- Monroe 1104 circuit - due to a tree falling into the line.
- Santa Rosa A 1107 circuit – due to a tree branch falling into the line.

- Monroe 2103 circuit – due to a tree falling into the line.
- Dunbar 1102 circuit – due to a tree falling into the line.

Top Outages of Unknown Cause:

- Rincon 1101 circuit – two outages; line was patrolled and nothing was found.
- Dunbar 1102 circuit – line was patrolled and nothing was found.
- Dunbar 1101 circuit – line was patrolled and nothing was found.

These outages contributed 4,617.2 minutes to the October 8-9, 2017 overall CAIDI performance.

12. October 14, 2017 Major Event Day

The twelfth major event was for October 14, 2017 caused by wildfires. Table 130 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(October 14, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	October 14, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	1317.3	584.5%	Yes
CENTRAL COAST	139.0	215.6	155.1%	Yes
DE ANZA	137.6	168.8	122.6%	NO
DIABLO	126.9	295.3	232.8%	Yes
EAST BAY	140.1	50.2	35.8%	NO
FRESNO	98.2	180.8	184.1%	Yes
HUMBOLDT	606.8	12.4	2.0%	NO
KERN	117.6	95.6	81.3%	NO
LOS PADRES	345.3	140.0	40.5%	NO
MISSION	138.5	324.9	234.6%	Yes
NORTH BAY	203.0	514.6	253.6%	Yes
NORTH VALLEY	436.3	92.6	21.2%	NO
PENINSULA	123.7	131.0	105.9%	NO
SACRAMENTO	138.8	65.7	47.3%	NO
SAN FRANCISCO	258.7	0.0	0.0%	NO
SAN JOSE	134.9	51.8	38.4%	NO
SIERRA	301.2	218.2	72.4%	NO
SONOMA	190.5	3018.7	1584.8%	Yes
STOCKTON	188.1	460.4	244.7%	Yes
YOSEMITE	170.0	184.0	108.2%	NO

Table 130 – October 14, 2017 CAIDI Performance

12.1 System CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SYSTEM	December 30, 2014	202.6	643
SYSTEM	February 6-8, 2015	395.4	540
SYSTEM	April 6, 2015	193.5	85
SYSTEM	June 8, 2015	122.6	182
SYSTEM	July 18-19, 2015	169.4	282
SYSTEM	December 13, 2015	127.7	523
SYSTEM	December 24, 2015	344.5	135
SYSTEM	February 17, 2016	144.6	380
SYSTEM	March 5, 2016	176.4	620
SYSTEM	October 14, 2016	152.3	326
	Average of 10 excludable major events	225.4	391
SYSTEM	October 14, 2017	1,317.3	95
	% Difference	484.5%	-76%

Table 131 – System Historical Performance

As indicated in Table 131, the system CAIDI value of 1,317.3 minutes for the October 14, 2017 major event was 484.5% higher than the 225.4 minutes average of the prior 10 weather-related excludable major events.

The following was the top contributing factor to the higher CAIDI value:

- Wildfires – wildfire outages were approximately 20% of the total outages for this event and contributed 1,134.4 minutes to the overall October 14.

12.2 Central Coast CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	October 14, 2017	215.6	9
	% Difference	55.1%	-75%

Table 132 – Central Coast Historical Performance

As indicated in Table 132, the Central Coast division CAIDI value of 215.6 minutes for the October 14, 2017 major event was 55.1% higher than the 139.0 minutes average of the prior 10 weather-related excludable major events.

The following two outages were the top contributing factors to the higher CAIDI value:

- Big Basin 1102 circuit – due to a tree branch falling into the line.
- Camp Evers 2106 – an outage of unknown cause (line was patrolled and nothing was found).

These two outages contributed 75.2 minutes to the October 14, 2017 overall CAIDI performance.

12.3 Diablo CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DIABLO	December 11-12, 2014	199.1	20
DIABLO	December 30, 2014	183.0	47
DIABLO	February 6-8, 2015	87.5	16
DIABLO	April 6, 2015	112.0	1
DIABLO	June 8, 2015	104.5	23
DIABLO	July 18-19, 2015	144.8	3
DIABLO	December 13, 2015	31.6	7
DIABLO	February 17, 2016	81.7	9
DIABLO	March 5, 2016	247.2	18
DIABLO	October 14, 2016	176.3	12
	Average of 10 excludable major events	126.9	15
DIABLO	October 14, 2017	295.3	4
	% Difference	132.8%	-73%

Table 133 – Diablo Historical Performance

As indicated in Table 133, the Diablo division CAIDI value of 295.3 minutes for the October 14, 2017 major event was 132.8% higher than the 126.9 minutes average of the prior 10 weather-related excludable major events.

The following two outages were the top contributing factors to the higher CAIDI value:

- Tassajara 2112 circuit – due to a failed overhead conductor.
- Kirker 2107 – due to a failed underground transformer.

These two outages contributed 189.4 minutes to the October 14, 2017 overall CAIDI performance.

12.4 Fresno CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
FRESNO	December 30, 2014	392.1	4
FRESNO	February 6-8, 2015	100.8	10
FRESNO	April 6, 2015	13.8	8
FRESNO	June 8, 2015	67.3	18
FRESNO	July 18-19, 2015	119.0	73
FRESNO	December 13, 2015	23.7	18
FRESNO	December 24, 2015	21.8	9
FRESNO	February 17, 2016	83.8	25
FRESNO	March 5, 2016	60.9	11
FRESNO	October 14, 2016	116.7	5
	Average of 10 excludable major events	98.2	23
FRESNO	October 14, 2017	180.8	4
	% Difference	84.1%	-82%

Table 134 – Fresno Historical Performance

As indicated in Table 134, the Fresno division CAIDI value of 180.8 minutes for the October 14, 2017 major event was 184.1% higher than the 98.2 minutes average of the prior 10 weather-related excludable major events.

The following was the top contributing factor to the higher CAIDI value:

- Malaga 1109 circuit – due to a failed underground transformer.

This outage contributed 107.1 minutes to the October 14, 2017 overall CAIDI performance.

12.5 Mission CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
MISSION	December 30, 2014	135.7	31.0
MISSION	February 6-8, 2015	51.5	4
MISSION	April 6, 2015	74.3	2
MISSION	June 8, 2015	159.7	12
MISSION	July 18-19, 2015	250.2	2
MISSION	December 13, 2015	176.0	6
MISSION	December 24, 2015	165.5	2
MISSION	February 17, 2016	131.3	8
MISSION	March 5, 2016	209.3	6
MISSION	October 14, 2016	174.5	29
	Average of 10 excludable major events	138.5	9
MISSION	October 14, 2017	324.9	3
	% Difference	134.6%	-65%

Table 135 – Mission Historical Performance

As indicated in Table 135, the Mission division CAIDI value of 324.9 minutes for the October 14, 2017 major event was 134.6% higher than the 138.5 minutes average of the prior 10 weather-related excludable major events.

The following was the top contributing factor to the higher CAIDI value:

- Jarvis 1110 circuit – due to a failed overhead jumper.

This outage contributed 249.3 minutes to the October 14, 2017 overall CAIDI performance.

12.6 North Bay CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
NORTH BAY	December 30, 2014	183.5	39
NORTH BAY	February 6-8, 2015	254.1	41
NORTH BAY	April 6, 2015	124.0	1
NORTH BAY	June 8, 2015	245.7	8
NORTH BAY	July 18-19, 2015	161.4	3
NORTH BAY	December 13, 2015	146.4	20
NORTH BAY	December 24, 2015	230.2	4
NORTH BAY	February 17, 2016	102.9	19
NORTH BAY	March 5, 2016	224.6	46
NORTH BAY	October 14, 2016	180.7	24
	Average of 10 excludable major events	203.0	22
NORTH BAY	October 14, 2017	514.6	11
	% Difference	153.6%	-51%

Table 136 – North Bay Historical Performance

As indicated in Table 136, the North Bay division CAIDI value of 514.6 minutes for the October 14, 2017 major event was 153.6% higher than the 203.0 minutes average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- Silverado 2103 circuit – three outages; the first was due to a broken cross-arm, the second due to a 3rd party equipment malfunction, and third, failed overhead conductor.
- Pueblo 2102 circuit – due to an outage of unknown cause (line was patrolled and nothing was found).
- Monticello 1101 – due to a broken fuse cutout.

These five outages contributed 347.0 minutes to the October 14, 2017 overall CAIDI performance.

12.7 Sonoma CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SONOMA	December 30, 2014	84.9	45
SONOMA	February 6-8, 2015	248.5	65
SONOMA	April 6, 2015	117.8	3
SONOMA	June 8, 2015	194.2	7
SONOMA	July 18-19, 2015	71.2	4
SONOMA	December 13, 2015	230.6	34
SONOMA	December 24, 2015	139.8	5
SONOMA	February 17, 2016	55.9	3
SONOMA	March 5, 2016	168.2	53
SONOMA	October 14, 2016	140.1	9
	Average of 10 excludable major events	190.5	28
SONOMA	October 14, 2017	3,018.7	25
	% Difference	1484.8%	-10%

Table 137 – Sonoma Historical Performance

As indicated in Table 137, the Sonoma division CAIDI value of 3,018.7 minutes for the October 14, 2017 major event was 1,484.8% higher than the 190.5 minutes average of the prior 10 weather-related excludable major events.

The following three outages were the top contributing factors to the higher CAIDI value:

- Wildfires – wildfire outages were approximately 88% of the total outages for this event.
- Cloverdale 1102 circuit – due to a failed overhead transformer.
- Rincon 1101 circuit – due to an outage of unknown cause (line was patrolled and nothing was found).

These three outages contributed 2,994.7 minutes to the October 14, 2017 overall CAIDI performance.

12.8 Stockton CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
STOCKTON	December 30, 2014	288.3	37
STOCKTON	February 6-8, 2015	135.7	20
STOCKTON	April 6, 2015	43.7	5
STOCKTON	June 8, 2015	132.6	12
STOCKTON	July 18-19, 2015	173.8	6
STOCKTON	December 13, 2015	146.7	27
STOCKTON	December 24, 2015	261.1	16
STOCKTON	February 17, 2016	175.0	29
STOCKTON	March 5, 2016	210.2	33
STOCKTON	October 14, 2016	132.1	31
	Average of 10 excludable major events	188.1	20
STOCKTON	October 14, 2017	460.4	3
	% Difference	144.7%	-85%

Table 138 – Stockton Historical Performance

As indicated in Table 138, the Stockton division CAIDI value of 460.4 minutes for the October 14, 2017 major event was 144.7% higher than the 188.1 minutes average of the prior 10 weather-related excludable major events.

The following was the top contributing factor to the higher CAIDI value:

- Mettler 1110 circuit – due to a car hitting a pad-mounted switch and knocking it off the pad.

This outage contributed 408.9 minutes to the October 14, 2017 overall CAIDI performance.

13. October 20, 2017 Major Event Day

The thirteenth major event was for October 20, 2017 caused by weather system that brought rain and wind to the system. Table 139 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(October 20, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	October 14, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	1317.3	584.5%	Yes
CENTRAL COAST	139.0	215.6	155.1%	Yes
DE ANZA	137.6	168.8	122.6%	NO
DIABLO	126.9	295.3	232.8%	Yes
EAST BAY	140.1	50.2	35.8%	NO
FRESNO	98.2	180.8	184.1%	Yes
HUMBOLDT	606.8	12.4	2.0%	NO
KERN	117.6	95.6	81.3%	NO
LOS PADRES	345.3	140.0	40.5%	NO
MISSION	138.5	324.9	234.6%	Yes
NORTH BAY	203.0	514.6	253.6%	Yes
NORTH VALLEY	436.3	92.6	21.2%	NO
PENINSULA	123.7	131.0	105.9%	NO
SACRAMENTO	138.8	65.7	47.3%	NO
SAN FRANCISCO	258.7	0.0	0.0%	NO
SAN JOSE	134.9	51.8	38.4%	NO
SIERRA	301.2	218.2	72.4%	NO
SONOMA	190.5	3018.7	1584.8%	Yes
STOCKTON	188.1	460.4	244.7%	Yes
YOSEMITE	170.0	184.0	108.2%	NO

Table 139 – October 20, 2017 CAIDI Performance

13.1 Fresno CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
FRESNO	December 30, 2014	392.1	4
FRESNO	February 6-8, 2015	100.8	10
FRESNO	April 6, 2015	13.8	8
FRESNO	June 8, 2015	67.3	18
FRESNO	July 18-19, 2015	119.0	73
FRESNO	December 13, 2015	23.7	18
FRESNO	December 24, 2015	21.8	9
FRESNO	February 17, 2016	83.8	25
FRESNO	March 5, 2016	60.9	11
FRESNO	October 14, 2016	116.7	5
	Average of 10 excludable major events	98.2	23
FRESNO	October 20, 2017	173.1	60
	% Difference	76.3%	166%

Table 140 – Fresno Historical Performance

As indicated in Table 140, the Fresno division CAIDI value of 173.1 minutes for the October 20, 2017 major event was 76.3% higher than the 98.2 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages per day of 60 for October 20, 2017 was 166% higher than the average of the corresponding prior 10 excludable major events of 23. This illustrates the intensity of the October 20th event had on the division.

The following nine outages were the top contributing factors to the higher CAIDI value:

- Gates-Tulare 70 kV line – due to a grass fire.
- McCall 1103 circuit – due to a broken cross-arm.
- McCall 1102 circuit – due to a burnt cross-arm.
- Caruthers 1102 circuit – due to a burnt cross-arm
- Manchester 1109 circuit – due to broken cross-arm.
- Barton 1108 circuit – due to a pole fire.
- Ashlan Ave. 1109 circuit – due to broken cross-arm.
- Shepherd 2110 circuit – due to a pole fire.
- Coalinga 1106 circuit – due to a failed overhead conductor.

These nine outages contributed 52.5 minutes to the October 20, 2017 overall CAIDI performance.

13.2 Kern CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
KERN	December 30, 2014	20.0	6
KERN	February 6-8, 2015	67.9	4
KERN	April 6, 2015	66.9	3
KERN	June 8, 2015	325.4	8
KERN	July 18-19, 2015	163.9	44
KERN	December 13, 2015	144.1	5
KERN	December 24, 2015	119.0	1
KERN	February 17, 2016	271.6	4
KERN	March 5, 2016	271.7	4
KERN	October 14, 2016	18.4	4
	Average of 10 excludable major events	117.6	10
KERN	October 20, 2017	152.8	12
	% Difference	29.9%	16%

Table 141 – Kern Historical Performance

As indicated in Table 141, the Fresno division CAIDI value of 152.8 minutes for the October 20, 2017 major event was 29.9% higher than the 117.6 minutes average of the prior 10 weather-related excludable major events.

The following three outages were the top contributing factors to the higher CAIDI value:

- Smyrna 1103 circuit – due to a pole fire.
- Semitropic 1110 circuit – due to a broken pole.
- Rio Bravo 1106 circuit – due to a pole fire.

These three outages contributed 37.4 minutes to the October 20, 2017 overall CAIDI performance.

13.3 Mission CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
MISSION	December 30, 2014	135.7	31
MISSION	February 6-8, 2015	51.5	4
MISSION	April 6, 2015	74.3	2
MISSION	June 8, 2015	159.7	12
MISSION	July 18-19, 2015	250.2	2
MISSION	December 13, 2015	176.0	6
MISSION	December 24, 2015	165.5	2
MISSION	February 17, 2016	131.3	8
MISSION	March 5, 2016	209.3	6
MISSION	October 14, 2016	174.5	29
	Average of 10 excludable major events	138.5	9
MISSION	October 20, 2017	252.4	10
	% Difference	82.3%	16%

Table 142 – Mission Historical Performance

As indicated in Table 142, the Mission division CAIDI value of 252.4 minutes for the October 20, 2017 major event was 82.3% higher than the 138.5 minutes average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- Fremont 1104 circuit – due to an outage of unknown cause (line was patrolled and nothing was found).
- Las Positas 2109 circuit – due to a burnt pole.
- Mtn. Eden 1109 circuit – due to a broken cross-arm.
- Castro Valley 1105 circuit – due to a failed overhead conductor.
- Las Positas 2106 circuit – due to a failed underground cable.

These five outages contributed 83.8 minutes to the October 20, 2017 overall CAIDI performance.

13.4 Peninsula CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
PENINSULA	December 30, 2014	113.4	23
PENINSULA	February 6-8, 2015	158.1	30
PENINSULA	April 6, 2015	216.0	1
PENINSULA	June 8, 2015	69.5	5
PENINSULA	July 18-19, 2015	42.0	3
PENINSULA	December 13, 2015	119.6	20
PENINSULA	December 24, 2015	448.7	3
PENINSULA	February 17, 2016	104.2	17
PENINSULA	March 5, 2016	139.9	34
PENINSULA	October 14, 2016	67.8	24
	Average of 10 excludable major events	123.7	17
PENINSULA	October 20, 2017	185.2	9
	% Difference	49.7%	-48%

Table 143 – Peninsula Historical Performance

As indicated in Table 143, the Peninsula division CAIDI value of 185.2 minutes for the October 20, 2017 major event was 49.7% higher than the 123.7 minutes average of the prior 10 weather-related excludable major events.

The following was the top contributing factor to the higher CAIDI value:

- Belmont 1102 circuit – due to a burnt cross-arm.

This outage contributed 102.7 minutes to the October 20, 2017 overall CAIDI performance.

13.5 San Jose CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SAN JOSE	December 30, 2014	161.1	41
SAN JOSE	February 6-8, 2015	123.5	8
SAN JOSE	April 6, 2015	94.8	1
SAN JOSE	June 8, 2015	139.2	15
SAN JOSE	July 18-19, 2015	106.6	4
SAN JOSE	December 13, 2015	77.2	21
SAN JOSE	December 24, 2015	100.0	3
SAN JOSE	February 17, 2016	79.3	14
SAN JOSE	March 5, 2016	162.4	10
SAN JOSE	October 14, 2016	124.3	6
	Average of 10 excludable major events	134.9	11
SAN JOSE	October 20, 2017	175.6	10
	% Difference	30.2%	-9%

Table 144 – San Jose Historical Performance

As indicated in Table 144, the San Jose division CAIDI value of 175.6 minutes for the October 20, 2017 major event was 30.2% higher than the 134.9 minutes average of the prior 10 weather-related excludable major events.

The following was the top contributing factor to the higher CAIDI value:

- Swift 2111 circuit – due to a tree getting into the line.

This outage contributed 61.3 minutes to the October 20, 2017 overall CAIDI performance.

13.6 Sonoma CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
SONOMA	December 30, 2014	84.9	45
SONOMA	February 6-8, 2015	248.5	65
SONOMA	April 6, 2015	117.8	3
SONOMA	June 8, 2015	194.2	7
SONOMA	July 18-19, 2015	71.2	4
SONOMA	December 13, 2015	230.6	34
SONOMA	December 24, 2015	139.8	5
SONOMA	February 17, 2016	55.9	3
SONOMA	March 5, 2016	168.2	53
SONOMA	October 14, 2016	140.1	9
	Average of 10 excludable major events	190.5	28
SONOMA	October 20, 2017	262.1	16
	% Difference	37.6%	-43%

Table 145 – Sonoma Historical Performance

As indicated in Table 145, the Sonoma division CAIDI value of 262.1 minutes for the October 20, 2017 major event was 37.6% higher than the 190.5 minutes average of the prior 10 weather-related excludable major events.

The following two outages were the top contributing factors to the higher CAIDI value:

- Molino 1103 circuit – due to a burnt pole.
- Sonoma 1104 circuit – due to a failed overhead jumper.

These two outages contributed 114.8 minutes to the October 20, 2017 overall CAIDI performance.

14. December 4, 2017 Major Event Day

The fourteenth major event was for December 4, 2017 caused by a winter storm event. Table 146 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(December 4, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	December 4, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	151.1	67.0%	NO
CENTRAL COAST	139.0	240.2	172.8%	Yes
DE ANZA	137.6	115.4	83.8%	NO
DIABLO	126.9	68.8	54.2%	NO
EAST BAY	140.1	114.9	82.0%	NO
FRESNO	98.2	40.5	41.2%	NO
HUMBOLDT	606.8	128.6	21.2%	NO
KERN	117.6	80.8	68.7%	NO
LOS PADRES	345.3	52.0	15.1%	NO
MISSION	138.5	130.5	94.2%	NO
NORTH BAY	203.0	194.9	96.0%	NO
NORTH VALLEY	436.3	498.5	114.3%	NO
PENINSULA	123.7	389.6	314.8%	Yes
SACRAMENTO	138.8	55.1	39.7%	NO
SAN FRANCISCO	258.7	53.1	20.5%	NO
SAN JOSE	134.9	75.2	55.7%	NO
SIERRA	301.2	300.1	99.6%	NO
SONOMA	190.5	39.2	20.6%	NO
STOCKTON	188.1	261.8	139.2%	Yes
YOSEMITE	170.0	186.8	109.9%	NO

Table 146 – December 4, 2017 CAIDI Performance

14.1 Central Coast CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	December 4, 2017	240.2	16
	% Difference	72.8%	-56%

Table 147 – Central Coast Historical Performance

As indicated in Table 147, the Central Coast division CAIDI value of 240.2 minutes for the December 4, 2017 major event was 72.8% higher than the 139.0 minutes average of the prior 10 weather-related excludable major events.

The following three outages were the top contributing factors to the higher CAIDI value:

- Big Basin 1101 circuit – due to a tree falling into the line.
- Big Basin 1102 circuit – due to a tree falling into the line.
- Point Moretti 1101 circuit – due to failed overhead connector / splice.

These three outages contributed 105.1 minutes to the December 4, 2017 overall CAIDI performance.

14.2 Peninsula CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
PENINSULA	December 30, 2014	113.4	23
PENINSULA	February 6-8, 2015	158.1	30
PENINSULA	April 6, 2015	216.0	1
PENINSULA	June 8, 2015	69.5	5
PENINSULA	July 18-19, 2015	42.0	3
PENINSULA	December 13, 2015	119.6	20
PENINSULA	December 24, 2015	448.7	3
PENINSULA	February 17, 2016	104.2	17
PENINSULA	March 5, 2016	139.9	34
PENINSULA	October 14, 2016	67.8	24
	Average of 10 excludable major events	123.7	17
PENINSULA	December 4, 2017	389.6	5
	% Difference	214.8%	-71%

Table 148 – Peninsula Historical Performance

As indicated in Table 148, the Peninsula division CAIDI value of 389.6 minutes for the December 4, 2017 major event was 214.8% higher than the 123.7 minutes average of the prior 10 weather-related excludable major events.

The following five outages are the cause for the higher CAIDI value:

- Bay Meadows 2101 circuit – due to a failed overhead transformer.
- Half Moon Bay 1101 circuit – due to a tree branch falling into the line.
- Half Moon Bay 1103 circuit – two outages; the first is due to an outage of unknown cause (the line was patrolled and nothing was found), and the second was due to a failed overhead conductor.
- Menlo 1102 circuit – due to a tree branch falling into the line.

These five outages contributed 389.6 minutes to the December 4, 2017 overall CAIDI performance.

14.3 Stockton CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
STOCKTON	December 30, 2014	288.3	37.0
STOCKTON	February 6-8, 2015	135.7	20
STOCKTON	April 6, 2015	43.7	5
STOCKTON	June 8, 2015	132.6	12
STOCKTON	July 18-19, 2015	173.8	6
STOCKTON	December 13, 2015	146.7	27
STOCKTON	December 24, 2015	261.1	16
STOCKTON	February 17, 2016	175.0	29
STOCKTON	March 5, 2016	210.2	33
STOCKTON	October 14, 2016	132.1	31
	Average of 10 excludable major events	188.1	20
STOCKTON	December 4, 2017	261.8	30
	% Difference	39.2%	48%

Table 149 – Stockton Historical Performance

As indicated in Table 149, the Stockton division CAIDI value of 261.8 minutes for the December 4, 2017 major event was 39.2% higher than the 188.1 minutes average of the prior 10 weather-related excludable major events.

The following five outages were the top contributing factors to the higher CAIDI value:

- West Point 1102 circuit – two outages; the first is due to an outage of unknown cause (the line was patrolled and nothing was found), and the second was due to a tree falling into the line.
- Salt Springs 2102 circuit – due to an outage of unknown cause (the line was patrolled and nothing was found.
- North Branch 1101 circuit – due to an outage of unknown cause (the line was patrolled and nothing was found).
- Salt Springs 2101 circuit – due to a tree falling into the line.

These five outages contributed 65.7 minutes to the December 4, 2017 overall CAIDI performance.

15. December 16, 2017 Major Event Day

The fifteenth major event was for December 16, 2017 caused by a wind event impacting two thirds of the territory and produced wind gusts up to 45 mph across lower elevations. Table 150 summarizes the system and division CAIDI performances during this event and the average of the prior ten weather related major events.

(December 16, 2017 vs. Prior 10 MED)

System / Division	Average CAIDI of Prior 10 System / Division Specific Excludable ME	December 16, 2017 / Division Specific CAIDI	Percent Difference From the Prior CAIDI Average	Exceeds the Investigation Threshold?
SYSTEM	225.4	171.5	76.1%	NO
CENTRAL COAST	139.0	240.1	172.7%	Yes
DE ANZA	137.6	1097.7	797.6%	Yes
DIABLO	126.9	166.1	130.9%	Yes
EAST BAY	140.1	65.4	46.7%	NO
FRESNO	98.2	109.4	111.4%	NO
HUMBOLDT	606.8	351.9	58.0%	NO
KERN	117.6	285.3	242.6%	Yes
LOS PADRES	345.3	21.2	6.1%	NO
MISSION	138.5	40.5	29.2%	NO
NORTH BAY	203.0	72.2	35.6%	NO
NORTH VALLEY	436.3	235.1	53.9%	NO
PENINSULA	123.7	158.1	127.8%	Yes
SACRAMENTO	138.8	85.1	61.3%	NO
SAN FRANCISCO	258.7	0.0	0.0%	NO
SAN JOSE	134.9	110.9	82.2%	NO
SIERRA	301.2	214.4	71.2%	NO
SONOMA	190.5	147.1	77.2%	NO
STOCKTON	188.1	112.8	60.0%	NO
YOSEMITE	170.0	137.7	81.0%	NO

Table 150 – December 16, 2017 CAIDI Performance

15.1 Central Coast CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
CENTRAL COAST	December 30, 2014	265.1	96
CENTRAL COAST	February 6-8, 2015	128.5	47
CENTRAL COAST	April 6, 2015	98.0	2
CENTRAL COAST	June 8, 2015	22.9	6
CENTRAL COAST	July 18-19, 2015	81.7	19
CENTRAL COAST	December 13, 2015	74.2	39
CENTRAL COAST	December 24, 2015	113.9	4
CENTRAL COAST	February 17, 2016	97.6	55
CENTRAL COAST	March 5, 2016	145.0	79
CENTRAL COAST	October 14, 2016	76.1	14
	Average of 10 excludable major events	139.0	36
CENTRAL COAST	December 16, 2017	240.1	48
	% Difference	72.7%	32%

Table 151 – Central Coast Historical Performance

As indicated in Table 151, the Central Coast division CAIDI value of 240.1 minutes for the December 16, 2017 major event was 72.7% higher than the 139.0 minutes average of the prior 10 weather-related excludable major events.

The average number of sustained outages 48 for December 16, 2017 was 32% higher than the average of the corresponding prior 10 excludable major events of 36. This illustrates the intensity of the December 16th event had on the division.

The following seven outages were the top contributing factors to the higher CAIDI value:

- Rob Roy 2104 circuit – three outages; two were due to an outage of unknown cause (the line was patrolled and nothing was found), and the third was due to a tree branch falling into the line.
- Green Valley 2101 circuit – two outages; both due to a tree branch falling into the line.
- Camp Evers 2106 circuit – due to an outage of unknown cause (the line was patrolled and nothing was found).
- Monte Vista – Burns 60 kV line – due to an outage of unknown cause (the line was patrolled and nothing was found).

These seven outages contributed 81.1 minutes to the December 16, 2017 overall CAIDI performance.

15.2 De Anza CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DE ANZA	December 11-12, 2014	192.7	13
DE ANZA	December 30, 2014	235.2	17
DE ANZA	February 6-8, 2015	104.8	20
DE ANZA	April 6, 2015	46.4	2
DE ANZA	June 8, 2015	395.8	9
DE ANZA	July 18-19, 2015	146.7	2
DE ANZA	December 13, 2015	71.7	8
DE ANZA	February 17, 2016	138.5	26
DE ANZA	March 5, 2016	141.4	34
DE ANZA	October 14, 2016	73.9	11
	Average of 10 excludable major events	137.6	14
DE ANZA	December 16, 2017	1,097.7	12
	% Difference	697.6%	-15%

Table 152 – De Anza Historical Performance

As indicated in Table 152, the De Anza division CAIDI value of 1,097.7 minutes for the December 16, 2017 major event was 697.6% higher than the 137.6 minutes average of the prior 10 weather-related excludable major events.

The following three outages were the top contributing factors to the higher CAIDI value:

- Los Gatos 1107 circuit – due to a tree falling into the line.
- Camp Evers 2106 circuit – due to a tree branch growing into the line.
- Los Gatos 1106 circuit – due to a tree falling into the line.

These three outages contributed 987.4 minutes to the December 16, 2017 overall CAIDI performance.

15.3 Diablo CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
DIABLO	December 11-12, 2014	199.1	20
DIABLO	December 30, 2014	183.0	47
DIABLO	February 6-8, 2015	87.5	16
DIABLO	April 6, 2015	112.0	1
DIABLO	June 8, 2015	104.5	23
DIABLO	July 18-19, 2015	144.8	3
DIABLO	December 13, 2015	31.6	7
DIABLO	February 17, 2016	81.7	9
DIABLO	March 5, 2016	247.2	18
DIABLO	October 14, 2016	176.3	12
	Average of 10 excludable major events	126.9	15
DIABLO	December 16, 2017	166.1	9
	% Difference	30.9%	-40%

Table 153 – Diablo Historical Performance

As indicated in Table 153, the Diablo division CAIDI value of 166.1 minutes for the December 16, 2017 major event was 30.9% higher than the 126.9 minutes average of the prior 10 weather-related excludable major events.

The following was the top contributing factor to the higher CAIDI value:

- Jersey Island 401 circuit – due to a failed overhead conductor.

This outage contributed 56.5 minutes to the December 16, 2017 overall CAIDI performance.

15.4 Kern CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
KERN	December 30, 2014	20.0	6
KERN	February 6-8, 2015	26.4	4
KERN	April 6, 2015	66.9	3
KERN	June 8, 2015	325.4	8
KERN	July 18-19, 2015	163.9	44
KERN	December 13, 2015	144.1	5
KERN	December 24, 2015	119.0	1
KERN	February 17, 2016	271.6	4
KERN	March 5, 2016	271.7	4
KERN	October 14, 2016	18.4	4
	Average of 10 excludable major events	117.6	10
KERN	December 16, 2017	285.3	2
	% Difference	142.6%	-81%

Table 154 – Kern Historical Performance

As indicated in Table 154, the Kern division CAIDI value of 285.3 minutes for the December 16, 2017 major event was 142.6% higher than the 117.6 minutes average of the prior 10 weather-related excludable major events.

The following two outages were experienced on December 16th and are the cause for the higher CAIDI value:

- Magunden 2109 circuit – due to a bird contacting the line.
- Tejon 1105 circuit – due to a failed overhead conductor

These two outages contributed 285.3 minutes to the December 16, 2017 overall CAIDI performance.

15.5 Peninsula CAIDI Assessment

System / Division	Major Event Day	CAIDI	SO / Day
PENINSULA	December 30, 2014	113.4	23
PENINSULA	February 6-8, 2015	158.1	30
PENINSULA	April 6, 2015	216.0	1
PENINSULA	June 8, 2015	69.5	5
PENINSULA	July 18-19, 2015	42.0	3
PENINSULA	December 13, 2015	119.6	20
PENINSULA	December 24, 2015	448.7	3
PENINSULA	February 17, 2016	104.2	17
PENINSULA	March 5, 2016	139.9	34
PENINSULA	October 14, 2016	67.8	24
	Average of 10 excludable major events	123.7	17
PENINSULA	December 16, 2017	158.1	18
	% Difference	27.8%	4%

Table 155 – Peninsula Historical Performance

As indicated in Table 155, the Peninsula division CAIDI value of 158.1 minutes for the December 16, 2017 major event was 27.8% higher than the 123.7 minutes average of the prior 10 weather-related excludable major events.

The following were the top contributing factors to the higher CAIDI value:

- Woodside 1101 circuit – two outages; the first was due to a tree falling into the line, and the second due to failed overhead conductor.

These two outages contributed 34.2 minutes to the December 16, 2017 overall CAIDI performance.

3. System and Division Indices Based on IEEE 1366 for the past 10 years including Planned Outages and including and excluding MED

The eight year trend (2008-2015) of continuous improved reliability did not continue in 2016 and 2017 in terms of the total duration of sustained outages per customer for the entire year (including planned outages but excluding major events). Since 2008, however, PG&E has consistently reduced the total duration of power outages per customer from 181.5 minutes to 113.4 minutes, a 38 percent improvement, as shown in Table 155 below.

Table 156: Combined Transmission and Distribution System Indices with Planned Outages

Year	Major Events Included				Major Events Excluded			
	SAIDI	SAIFI	MAIFI	CAIDI	SAIDI	SAIFI	MAIFI	CAIDI
2008	448.7	1.666	1.835	269.3	181.5	1.299	1.597	139.7
2009	235.2	1.404	1.547	167.5	157.5	1.206	1.398	130.6
2010	276.6	1.496	1.492	185.0	157.2	1.207	1.257	130.2
2011	311.8	1.392	1.490	223.9	141.8	1.087	1.180	130.5
2012	161.8	1.219	1.927	132.7	131.5	1.125	1.805	116.9
2013	138.3	1.167	1.643	118.5	116.8	1.065	1.533	109.7
2014	151.3	1.131	1.571	133.8	110.2	0.965	1.400	114.2
2015	147.2	1.052	1.820	139.9	95.9	0.871	1.594	110.1
2016	121.9	1.102	1.612	110.6	108.9	1.021	1.502	106.7
2017	374.2	1.549	2.418	241.6	113.4	0.958	1.580	118.3

a. System and Division Indices Based on IEEE 1366 for the past ten years including Planned Outages and including MED, and excluding ISO Outages

Table 157:

Division	Year	SAIDI	SAIFI	MAIFI	CAIDI
CENTRAL COAST	2008	850.4	2.468	2.757	344.5
CENTRAL COAST	2009	471.9	2.462	3.224	191.7
CENTRAL COAST	2010	429.9	2.143	3.952	200.6
CENTRAL COAST	2011	538.7	2.143	2.098	251.4
CENTRAL COAST	2012	174.4	1.411	2.385	123.6
CENTRAL COAST	2013	153.7	1.476	2.048	104.1
CENTRAL COAST	2014	219.2	1.438	2.130	152.4
CENTRAL COAST	2015	269.6	1.376	2.176	195.9
CENTRAL COAST	2016	202.8	1.714	2.746	118.3
CENTRAL COAST	2017	819.7	2.522	4.957	325.0
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
DE ANZA	2008	282.0	1.362	1.687	207.1
DE ANZA	2009	175.7	1.042	1.655	168.6
DE ANZA	2010	192.1	1.233	1.437	155.9
DE ANZA	2011	100.7	0.805	1.489	125.2
DE ANZA	2012	100.2	0.792	1.224	126.5
DE ANZA	2013	100.9	0.919	1.190	109.7
DE ANZA	2014	135.5	1.124	1.307	120.5
DE ANZA	2015	80.7	0.680	1.291	118.7
DE ANZA	2016	119.2	0.968	1.424	123.2
DE ANZA	2017	332.0	1.583	2.038	209.7
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
DIABLO	2008	222.7	1.597	2.132	139.5
DIABLO	2009	185.1	1.496	1.196	123.7
DIABLO	2010	143.1	1.488	1.314	96.2
DIABLO	2011	110.1	1.064	1.404	103.5
DIABLO	2012	127.7	1.334	1.407	95.7
DIABLO	2013	100.4	1.103	1.307	90.9
DIABLO	2014	101.0	1.046	1.389	96.5
DIABLO	2015	97.6	1.066	1.878	91.6
DIABLO	2016	97.8	1.129	1.731	86.7
DIABLO	2017	161.0	1.327	2.399	121.3
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
EAST BAY	2008	174.1	1.131	0.864	153.9
EAST BAY	2009	143.5	1.278	0.894	112.3
EAST BAY	2010	134.6	1.120	0.757	120.2
EAST BAY	2011	123.3	1.020	1.079	120.9
EAST BAY	2012	119.1	1.397	1.369	85.2
EAST BAY	2013	132.6	1.048	1.283	126.4
EAST BAY	2014	91.8	0.915	1.499	100.3
EAST BAY	2015	65.9	0.749	1.179	87.9
EAST BAY	2016	137.0	1.257	1.231	109.0
EAST BAY	2017	162.1	1.271	2.079	127.6

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
FRESNO	2008	227.4	1.754	1.798	129.7
FRESNO	2009	185.0	1.461	1.902	126.6
FRESNO	2010	204.0	1.377	1.957	148.1
FRESNO	2011	187.0	1.215	2.023	153.9
FRESNO	2012	122.1	1.158	2.361	105.4
FRESNO	2013	121.5	1.225	2.115	99.2
FRESNO	2014	104.0	1.095	1.775	95.0
FRESNO	2015	115.2	1.238	2.060	93.1
FRESNO	2016	99.4	1.207	1.977	82.3
FRESNO	2017	116.6	1.064	1.919	109.6
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
HUMBOLDT	2008	1,136.5	3.027	3.366	375.5
HUMBOLDT	2009	356.1	2.041	2.489	174.5
HUMBOLDT	2010	737.8	2.860	1.719	258.0
HUMBOLDT	2011	762.1	2.439	2.280	312.5
HUMBOLDT	2012	388.7	1.904	4.673	204.2
HUMBOLDT	2013	342.4	1.518	2.650	225.5
HUMBOLDT	2014	350.5	1.514	1.955	231.5
HUMBOLDT	2015	738.9	2.388	2.739	309.4
HUMBOLDT	2016	250.6	1.747	2.111	143.4
HUMBOLDT	2017	955.3	2.526	3.542	378.1
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
KERN	2008	192.0	1.509	1.216	127.3
KERN	2009	126.9	1.258	1.493	100.8
KERN	2010	152.4	1.264	1.583	120.6
KERN	2011	189.8	1.367	1.622	138.8
KERN	2012	107.7	1.066	1.229	101.0
KERN	2013	103.2	1.168	1.202	88.3
KERN	2014	131.4	1.204	1.847	109.2
KERN	2015	104.5	1.022	1.929	102.2
KERN	2016	101.9	0.991	2.115	102.9
KERN	2017	149.9	1.132	2.134	132.4
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
LOS PADRES	2008	262.0	1.931	3.067	135.7
LOS PADRES	2009	200.3	1.367	1.714	146.5
LOS PADRES	2010	293.1	1.818	2.055	161.2
LOS PADRES	2011	159.1	1.333	2.195	119.4
LOS PADRES	2012	124.0	1.142	1.633	108.6
LOS PADRES	2013	242.3	1.618	1.095	149.7
LOS PADRES	2014	202.2	1.298	1.378	155.8
LOS PADRES	2015	148.2	0.931	1.814	159.1
LOS PADRES	2016	130.1	1.254	1.677	103.8
LOS PADRES	2017	335.7	1.688	2.212	198.9

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
MISSION	2008	119.9	1.054	1.516	113.7
MISSION	2009	103.2	0.826	0.902	124.9
MISSION	2010	123.6	1.053	0.785	117.4
MISSION	2011	88.9	0.900	0.693	98.7
MISSION	2012	106.2	0.967	0.886	109.8
MISSION	2013	89.9	0.877	0.838	102.6
MISSION	2014	84.8	0.805	0.826	105.4
MISSION	2015	71.7	0.654	1.152	109.6
MISSION	2016	95.2	0.828	0.996	114.9
MISSION	2017	149.0	1.074	1.584	138.8
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
NORTH BAY	2008	589.1	1.782	1.979	330.6
NORTH BAY	2009	186.2	1.354	1.011	137.5
NORTH BAY	2010	179.8	1.320	1.402	136.2
NORTH BAY	2011	244.3	1.508	1.224	162.0
NORTH BAY	2012	164.5	1.046	1.950	157.3
NORTH BAY	2013	146.4	1.144	1.731	128.0
NORTH BAY	2014	253.2	1.362	2.714	185.9
NORTH BAY	2015	156.3	1.171	2.162	133.5
NORTH BAY	2016	133.6	1.031	1.451	129.5
NORTH BAY	2017	752.8	1.840	2.949	409.0
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
NORTH VALLEY	2008	1,625.4	2.527	4.194	643.3
NORTH VALLEY	2009	335.0	1.651	3.143	203.0
NORTH VALLEY	2010	609.0	2.007	2.002	303.5
NORTH VALLEY	2011	703.6	2.331	2.141	301.8
NORTH VALLEY	2012	543.4	2.003	2.952	271.4
NORTH VALLEY	2013	179.2	1.251	1.974	143.2
NORTH VALLEY	2014	212.1	1.285	1.837	165.1
NORTH VALLEY	2015	505.6	1.920	2.536	263.4
NORTH VALLEY	2016	194.4	1.357	2.195	143.3
NORTH VALLEY	2017	417.4	1.760	3.208	237.1
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
PENINSULA	2008	438.6	1.908	2.060	229.9
PENINSULA	2009	140.8	1.162	0.893	121.1
PENINSULA	2010	185.2	1.670	1.450	110.9
PENINSULA	2011	131.5	1.254	0.965	104.9
PENINSULA	2012	115.0	1.200	1.709	95.8
PENINSULA	2013	107.3	0.934	1.333	114.8
PENINSULA	2014	111.6	1.127	1.368	99.0
PENINSULA	2015	90.5	0.941	1.798	96.2
PENINSULA	2016	102.6	1.064	1.385	96.4
PENINSULA	2017	181.4	1.394	2.550	130.1

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SACRAMENTO	2008	894.5	2.030	2.300	440.6
SACRAMENTO	2009	266.9	1.471	1.836	181.5
SACRAMENTO	2010	215.9	1.210	1.439	178.3
SACRAMENTO	2011	210.1	1.306	1.922	160.9
SACRAMENTO	2012	182.2	1.478	2.157	123.3
SACRAMENTO	2013	123.1	1.106	1.716	111.3
SACRAMENTO	2014	128.4	1.006	1.452	127.7
SACRAMENTO	2015	113.0	1.009	1.776	112.0
SACRAMENTO	2016	118.5	1.133	1.846	104.6
SACRAMENTO	2017	300.0	1.970	3.303	152.3
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SAN FRANCISCO	2008	164.6	0.927	0.272	177.6
SAN FRANCISCO	2009	81.9	0.854	0.136	95.9
SAN FRANCISCO	2010	67.6	0.765	0.098	88.4
SAN FRANCISCO	2011	60.0	0.622	0.216	96.6
SAN FRANCISCO	2012	62.3	0.673	1.052	92.5
SAN FRANCISCO	2013	64.8	0.706	0.334	91.8
SAN FRANCISCO	2014	141.7	0.860	0.351	164.8
SAN FRANCISCO	2015	44.2	0.569	0.553	77.7
SAN FRANCISCO	2016	49.7	0.597	0.398	83.3
SAN FRANCISCO	2017	127.1	0.906	0.553	140.3
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SAN JOSE	2008	192.0	1.105	1.175	173.8
SAN JOSE	2009	102.5	0.920	0.818	111.4
SAN JOSE	2010	125.3	1.036	0.608	121.0
SAN JOSE	2011	131.6	1.065	0.808	123.6
SAN JOSE	2012	102.9	0.932	0.993	110.3
SAN JOSE	2013	122.1	1.089	1.038	112.1
SAN JOSE	2014	124.6	1.101	1.075	113.1
SAN JOSE	2015	90.2	0.873	1.164	103.4
SAN JOSE	2016	80.8	0.753	1.208	107.2
SAN JOSE	2017	201.1	1.342	1.964	149.8
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SIERRA	2008	1,221.3	2.354	2.051	518.8
SIERRA	2009	851.6	2.219	1.535	383.8
SIERRA	2010	788.5	2.415	1.608	326.6
SIERRA	2011	1,066.3	2.404	2.900	443.5
SIERRA	2012	269.9	1.582	3.229	170.6
SIERRA	2013	175.3	1.483	3.276	118.2
SIERRA	2014	208.9	1.467	2.431	142.5
SIERRA	2015	197.3	1.378	3.224	143.2
SIERRA	2016	188.4	1.337	1.915	140.8
SIERRA	2017	641.5	2.193	3.194	292.4

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SONOMA	2008	485.6	1.511	1.175	321.3
SONOMA	2009	216.1	1.374	1.574	157.3
SONOMA	2010	244.0	1.523	1.018	160.2
SONOMA	2011	286.9	1.438	1.529	199.5
SONOMA	2012	234.6	1.235	2.032	189.9
SONOMA	2013	210.8	1.260	2.537	167.3
SONOMA	2014	239.3	1.374	2.071	174.2
SONOMA	2015	140.7	0.985	1.993	142.8
SONOMA	2016	114.5	0.931	1.611	123.0
SONOMA	2017	1,868.7	2.064	2.953	905.2
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
STOCKTON	2008	304.6	1.637	2.212	186.1
STOCKTON	2009	445.1	1.897	3.146	234.6
STOCKTON	2010	408.9	1.806	1.604	226.5
STOCKTON	2011	502.1	1.862	1.202	269.7
STOCKTON	2012	192.4	1.286	2.105	149.6
STOCKTON	2013	135.0	1.552	2.145	87.0
STOCKTON	2014	138.5	0.923	1.471	150.0
STOCKTON	2015	135.0	1.105	2.249	122.1
STOCKTON	2016	118.1	1.087	1.788	108.7
STOCKTON	2017	289.5	1.718	1.952	168.5
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
YOSEMITE	2008	344.7	1.831	1.626	188.2
YOSEMITE	2009	287.5	1.570	1.722	183.2
YOSEMITE	2010	737.9	2.109	3.166	349.8
YOSEMITE	2011	1,201.5	2.098	2.642	572.7
YOSEMITE	2012	166.1	1.392	4.181	119.3
YOSEMITE	2013	204.7	1.403	3.466	145.9
YOSEMITE	2014	147.6	1.342	2.683	110.0
YOSEMITE	2015	130.6	1.162	3.098	112.4
YOSEMITE	2016	147.9	1.333	2.169	111.0
YOSEMITE	2017	323.8	1.796	3.103	180.2
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SYSTEM	2008	448.7	1.666	1.835	269.3
SYSTEM	2009	235.2	1.404	1.547	167.5
SYSTEM	2010	276.6	1.496	1.492	185.0
SYSTEM	2011	311.8	1.392	1.490	223.9
SYSTEM	2012	161.8	1.219	1.927	132.7
SYSTEM	2013	138.3	1.167	1.643	118.5
SYSTEM	2014	151.3	1.131	1.571	133.8
SYSTEM	2015	147.2	1.052	1.820	139.9
SYSTEM	2016	121.9	1.102	1.612	110.6
SYSTEM	2017	374.2	1.549	2.418	241.6

b. System and Division Indices Based on IEEE 1366 for the past 10 years including Planned Outages and excluding ISO, and MED

Table 158:

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
CENTRAL COAST	2008	272.9	1.820	2.373	150.0
CENTRAL COAST	2009	243.3	2.043	3.008	119.1
CENTRAL COAST	2010	210.2	1.672	2.937	125.8
CENTRAL COAST	2011	197.8	1.658	1.603	119.3
CENTRAL COAST	2012	159.7	1.339	2.206	119.3
CENTRAL COAST	2013	147.2	1.444	1.973	102.0
CENTRAL COAST	2014	141.8	1.171	1.835	121.2
CENTRAL COAST	2015	118.6	0.934	1.847	126.9
CENTRAL COAST	2016	180.2	1.548	2.492	116.4
CENTRAL COAST	2017	157.8	1.352	2.900	116.7
Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
DE ANZA	2008	120.4	1.033	1.459	116.6
DE ANZA	2009	121.3	0.900	1.587	134.8
DE ANZA	2010	135.6	1.019	1.167	133.0
DE ANZA	2011	80.9	0.718	1.181	112.7
DE ANZA	2012	92.1	0.742	1.110	124.1
DE ANZA	2013	98.9	0.909	1.155	108.8
DE ANZA	2014	111.2	0.987	1.211	112.6
DE ANZA	2015	68.2	0.561	1.182	121.7
DE ANZA	2016	96.7	0.796	1.347	121.4
DE ANZA	2017	114.3	1.063	1.353	107.5
Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
DIABLO	2008	160.1	1.475	1.952	108.6
DIABLO	2009	170.6	1.401	1.157	121.8
DIABLO	2010	127.5	1.336	1.221	95.4
DIABLO	2011	98.0	0.934	1.245	104.9
DIABLO	2012	121.2	1.291	1.369	93.9
DIABLO	2013	97.4	1.081	1.246	90.0
DIABLO	2014	84.8	0.953	1.240	89.0
DIABLO	2015	87.5	0.939	1.671	93.2
DIABLO	2016	95.2	1.115	1.696	85.4
DIABLO	2017	97.9	0.982	1.781	99.8
Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
EAST BAY	2008	114.0	0.959	0.810	118.8
EAST BAY	2009	129.8	1.181	0.847	109.9
EAST BAY	2010	98.7	0.902	0.682	109.4
EAST BAY	2011	106.5	0.906	0.850	117.5
EAST BAY	2012	108.9	1.301	1.300	83.7
EAST BAY	2013	76.3	0.867	1.172	88.0
EAST BAY	2014	75.5	0.795	1.283	95.0
EAST BAY	2015	51.1	0.611	1.085	83.6
EAST BAY	2016	110.2	1.101	1.068	100.1
EAST BAY	2017	88.3	0.956	1.610	92.4

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
FRESNO	2008	202.6	1.626	1.741	124.6
FRESNO	2009	168.2	1.331	1.758	126.4
FRESNO	2010	143.5	1.157	1.848	124.0
FRESNO	2011	98.3	0.894	1.689	110.0
FRESNO	2012	120.5	1.135	2.325	106.2
FRESNO	2013	118.8	1.192	2.074	99.7
FRESNO	2014	101.6	1.076	1.704	94.5
FRESNO	2015	84.8	0.935	1.832	90.7
FRESNO	2016	97.5	1.185	1.954	82.3
FRESNO	2017	85.9	0.874	1.594	98.2
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
HUMBOLDT	2008	526.2	2.254	2.922	233.4
HUMBOLDT	2009	336.6	1.904	2.348	176.8
HUMBOLDT	2010	564.6	2.472	1.539	228.4
HUMBOLDT	2011	439.7	1.914	1.886	229.7
HUMBOLDT	2012	327.1	1.717	4.349	190.6
HUMBOLDT	2013	248.4	1.296	2.435	191.7
HUMBOLDT	2014	274.4	1.363	1.823	201.3
HUMBOLDT	2015	319.8	1.774	2.426	180.2
HUMBOLDT	2016	234.1	1.647	2.051	142.2
HUMBOLDT	2017	310.5	1.469	2.312	211.4
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
KERN	2008	155.0	1.290	1.079	120.1
KERN	2009	115.4	1.186	1.398	97.3
KERN	2010	135.1	1.142	1.423	118.3
KERN	2011	132.3	1.072	1.345	123.4
KERN	2012	106.5	1.048	1.229	101.6
KERN	2013	98.9	1.110	1.120	89.1
KERN	2014	101.8	1.041	1.623	97.8
KERN	2015	92.8	0.938	1.855	99.0
KERN	2016	101.2	0.974	2.108	103.9
KERN	2017	88.5	0.790	1.564	112.0
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
LOS PADRES	2008	163.2	1.469	2.722	111.1
LOS PADRES	2009	122.6	1.102	1.324	111.2
LOS PADRES	2010	126.6	1.232	1.732	102.7
LOS PADRES	2011	113.5	1.072	1.666	105.8
LOS PADRES	2012	123.3	1.139	1.626	108.2
LOS PADRES	2013	116.3	0.848	0.950	137.2
LOS PADRES	2014	110.5	1.101	1.159	100.3
LOS PADRES	2015	88.1	0.773	1.438	113.9
LOS PADRES	2016	128.3	1.228	1.676	104.5
LOS PADRES	2017	126.3	1.054	1.519	119.8

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
MISSION	2008	92.9	0.922	1.425	100.7
MISSION	2009	96.6	0.761	0.876	126.9
MISSION	2010	113.8	0.974	0.714	116.8
MISSION	2011	77.1	0.806	0.627	95.6
MISSION	2012	103.5	0.941	0.885	109.9
MISSION	2013	84.2	0.808	0.776	104.3
MISSION	2014	74.0	0.726	0.777	102.0
MISSION	2015	65.6	0.601	1.055	109.3
MISSION	2016	85.1	0.766	0.950	111.1
MISSION	2017	71.1	0.664	1.091	107.1
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
NORTH BAY	2008	181.8	1.258	1.777	144.5
NORTH BAY	2009	143.3	1.175	0.896	122.0
NORTH BAY	2010	151.9	1.122	1.295	135.3
NORTH BAY	2011	151.0	1.246	1.088	121.2
NORTH BAY	2012	133.8	0.916	1.647	146.0
NORTH BAY	2013	133.8	1.057	1.456	126.6
NORTH BAY	2014	132.3	0.984	2.499	134.5
NORTH BAY	2015	117.9	1.014	1.978	116.2
NORTH BAY	2016	107.2	0.878	1.225	122.1
NORTH BAY	2017	167.7	1.033	1.868	162.3
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
NORTH VALLEY	2008	385.7	1.804	3.448	213.8
NORTH VALLEY	2009	257.1	1.436	3.010	179.1
NORTH VALLEY	2010	213.6	1.383	1.837	154.4
NORTH VALLEY	2011	239.2	1.515	1.565	157.9
NORTH VALLEY	2012	252.2	1.622	2.580	155.5
NORTH VALLEY	2013	158.6	1.193	1.916	132.9
NORTH VALLEY	2014	150.0	1.076	1.580	139.4
NORTH VALLEY	2015	158.7	1.195	1.938	132.9
NORTH VALLEY	2016	165.7	1.220	1.960	135.9
NORTH VALLEY	2017	130.9	0.949	2.053	138.0
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
PENINSULA	2008	136.0	1.222	1.786	111.3
PENINSULA	2009	97.4	0.922	0.769	105.6
PENINSULA	2010	139.4	1.430	1.036	97.5
PENINSULA	2011	102.5	1.106	0.807	92.7
PENINSULA	2012	100.6	1.054	1.528	95.4
PENINSULA	2013	83.0	0.834	1.125	99.6
PENINSULA	2014	90.1	0.967	1.166	93.2
PENINSULA	2015	74.8	0.826	1.602	90.6
PENINSULA	2016	94.4	0.982	1.199	96.1
PENINSULA	2017	75.6	0.704	1.311	107.3

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SACRAMENTO	2008	218.9	1.365	1.734	160.4
SACRAMENTO	2009	150.0	1.183	1.552	126.8
SACRAMENTO	2010	141.3	0.981	1.087	144.0
SACRAMENTO	2011	135.7	1.092	1.719	124.3
SACRAMENTO	2012	159.6	1.338	1.984	119.3
SACRAMENTO	2013	117.6	1.059	1.587	111.0
SACRAMENTO	2014	114.6	0.898	1.273	127.5
SACRAMENTO	2015	100.7	0.913	1.561	110.3
SACRAMENTO	2016	102.6	1.042	1.570	98.5
SACRAMENTO	2017	137.9	1.168	1.782	118.1
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SAN FRANCISCO	2008	71.1	0.734	0.272	96.8
SAN FRANCISCO	2009	78.9	0.832	0.100	94.8
SAN FRANCISCO	2010	60.7	0.708	0.078	85.8
SAN FRANCISCO	2011	56.2	0.591	0.211	95.2
SAN FRANCISCO	2012	57.6	0.632	1.009	91.2
SAN FRANCISCO	2013	58.8	0.653	0.304	90.0
SAN FRANCISCO	2014	52.2	0.537	0.234	97.3
SAN FRANCISCO	2015	41.8	0.551	0.516	75.8
SAN FRANCISCO	2016	48.7	0.577	0.356	84.4
SAN FRANCISCO	2017	46.5	0.543	0.402	85.8
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SAN JOSE	2008	105.0	0.872	1.011	120.4
SAN JOSE	2009	88.6	0.819	0.797	108.1
SAN JOSE	2010	91.0	0.874	0.539	104.1
SAN JOSE	2011	119.2	0.975	0.701	122.2
SAN JOSE	2012	98.3	0.882	0.966	111.5
SAN JOSE	2013	118.8	1.040	0.978	114.2
SAN JOSE	2014	101.4	0.929	1.035	109.1
SAN JOSE	2015	80.4	0.787	1.020	102.3
SAN JOSE	2016	77.4	0.719	1.161	107.6
SAN JOSE	2017	92.9	0.838	1.295	111.0
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SIERRA	2008	274.0	1.710	1.555	160.2
SIERRA	2009	291.4	1.538	1.247	189.5
SIERRA	2010	227.8	1.460	1.164	156.1
SIERRA	2011	232.1	1.371	1.534	169.3
SIERRA	2012	209.0	1.423	2.911	146.8
SIERRA	2013	128.2	1.350	3.139	94.9
SIERRA	2014	156.2	1.266	2.210	123.5
SIERRA	2015	138.4	1.218	2.887	113.6
SIERRA	2016	135.7	1.114	1.756	121.8
SIERRA	2017	176.3	1.308	1.904	134.8

Division/System	Year	SAIDI	SAIFI	MAIFI	CAIDI
SONOMA	2008	187.5	1.239	0.942	151.3
SONOMA	2009	185.8	1.264	1.321	146.9
SONOMA	2010	190.2	1.270	0.818	149.8
SONOMA	2011	143.6	1.049	1.338	137.0
SONOMA	2012	143.6	1.022	1.733	140.5
SONOMA	2013	141.0	0.979	2.257	144.0
SONOMA	2014	138.2	1.023	1.589	135.2
SONOMA	2015	94.3	0.790	1.535	119.5
SONOMA	2016	107.7	0.887	1.514	121.3
SONOMA	2017	139.2	0.998	1.595	139.4
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
STOCKTON	2008	180.6	1.211	1.819	149.2
STOCKTON	2009	194.2	1.368	2.725	142.0
STOCKTON	2010	188.8	1.405	1.403	134.4
STOCKTON	2011	208.9	1.336	0.912	156.4
STOCKTON	2012	118.6	1.109	1.981	106.9
STOCKTON	2013	125.7	1.516	2.033	82.9
STOCKTON	2014	120.4	0.829	1.336	145.3
STOCKTON	2015	106.5	0.944	1.952	112.8
STOCKTON	2016	102.1	0.994	1.675	102.7
STOCKTON	2017	102.3	1.033	1.282	99.1
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
YOSEMITE	2008	231.0	1.489	1.533	155.2
YOSEMITE	2009	209.5	1.321	1.467	158.5
YOSEMITE	2010	252.8	1.570	2.598	161.1
YOSEMITE	2011	237.2	1.394	1.819	170.1
YOSEMITE	2012	159.2	1.352	4.101	117.7
YOSEMITE	2013	203.2	1.385	3.296	146.7
YOSEMITE	2014	129.6	1.278	2.460	101.4
YOSEMITE	2015	120.4	1.073	2.641	112.2
YOSEMITE	2016	141.3	1.277	2.036	110.6
YOSEMITE	2017	155.5	1.242	2.188	125.2
Division/System	**Year**	**SAIDI**	**SAIFI**	**MAIFI**	**CAIDI**
SYSTEM	2008	181.5	1.299	1.597	139.7
SYSTEM	2009	157.5	1.206	1.398	130.6
SYSTEM	2010	157.2	1.207	1.257	130.2
SYSTEM	2011	141.8	1.087	1.180	130.5
SYSTEM	2012	131.5	1.125	1.805	116.9
SYSTEM	2013	116.8	1.065	1.533	109.7
SYSTEM	2014	110.2	0.965	1.400	114.2
SYSTEM	2015	95.9	0.871	1.594	110.1
SYSTEM	2016	108.9	1.021	1.502	106.7
SYSTEM	2017	113.4	0.958	1.580	118.3

c. Charts for System and Division Indices Based on IEEE 1366 for the past 10 years including Planned Outages and including and excluding MED

i. Charts for System and Division Reliability Indices based on IEEE 1366 for the past 10 years with linear trend line, and including planned outages and excluding ISO, and MED

1. SAIDI Performance Results (MED Excluded)

Chart 189: Division Reliability – AIDI Indices

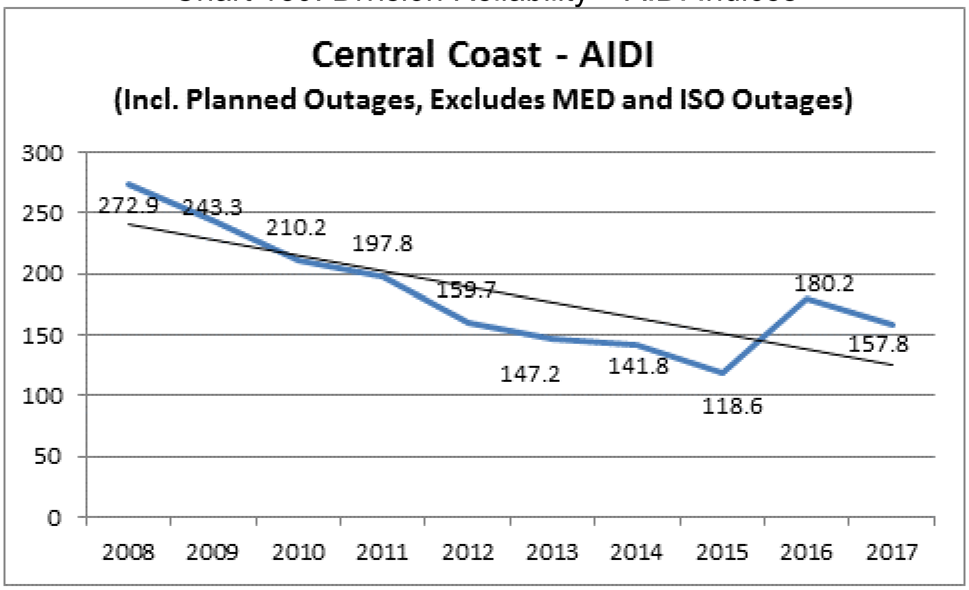


Chart 190: Division Reliability – AIDI Indices

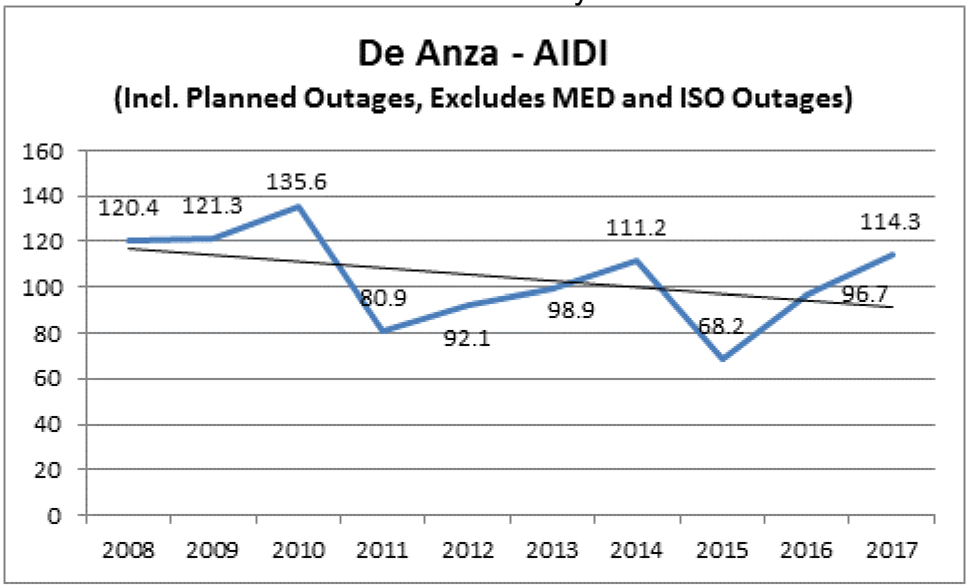


Chart 191: Division Reliability – AIDI Indices

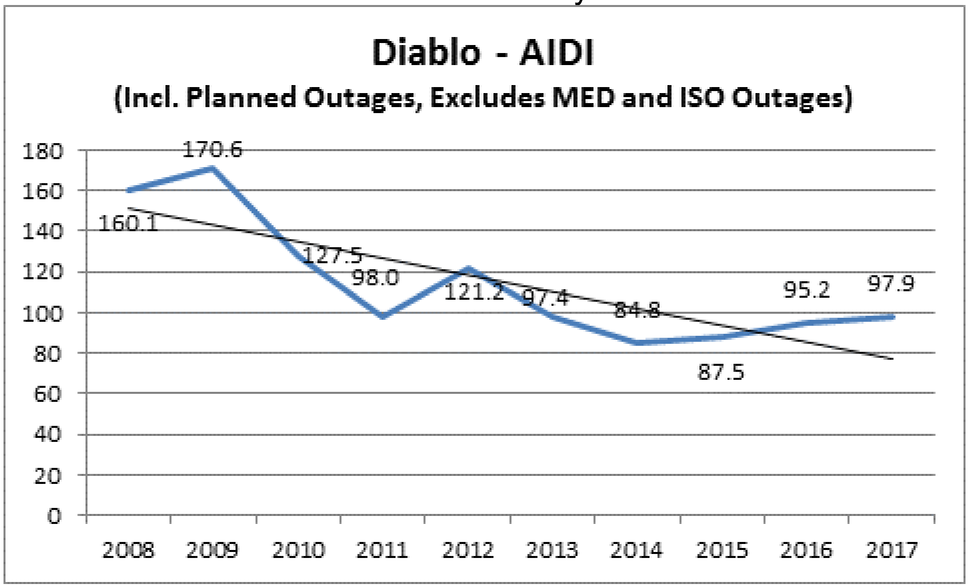


Chart 192: Division Reliability – AIDI Indices

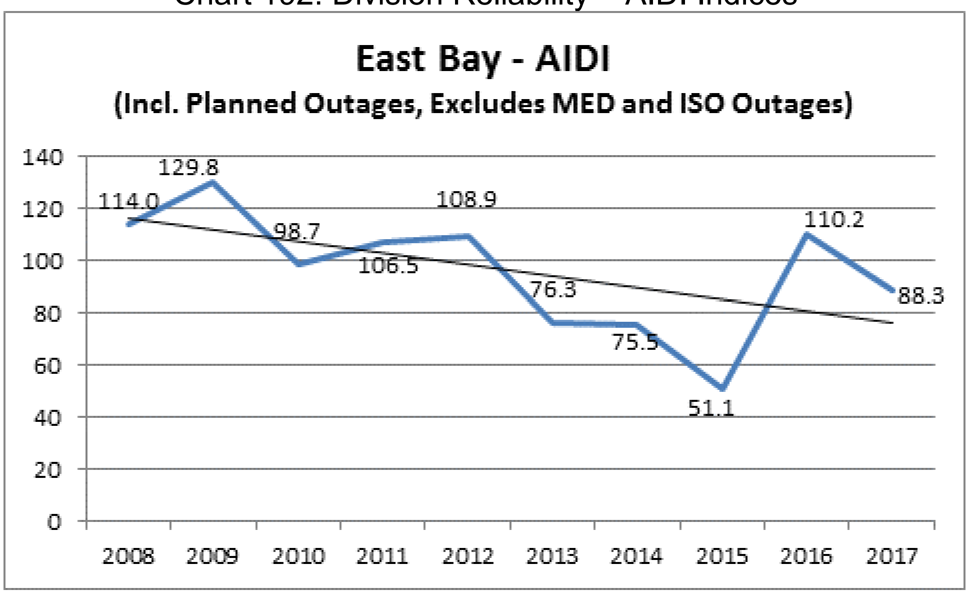


Chart 193: Division Reliability – AIDI Indices

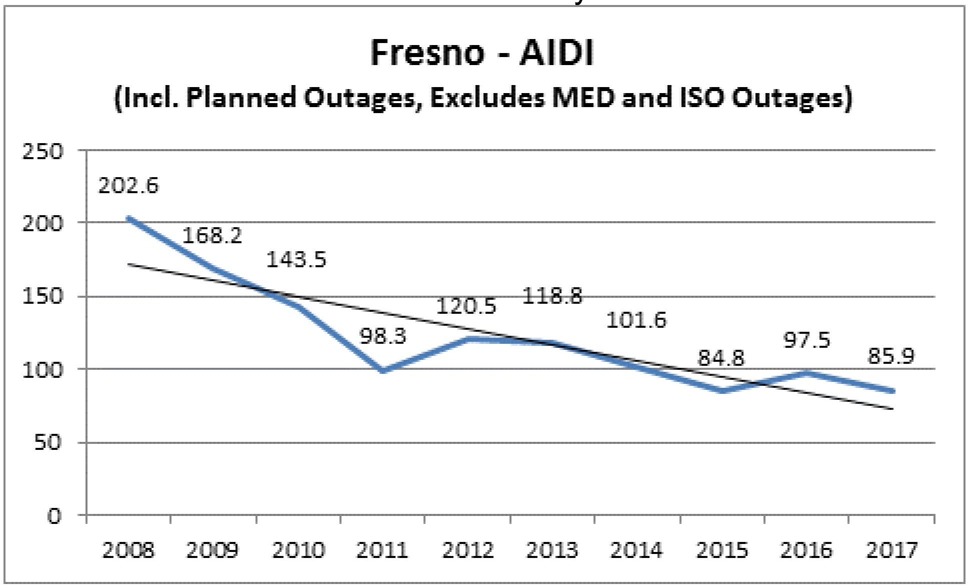


Chart 194: Division Reliability – AIDI Indices

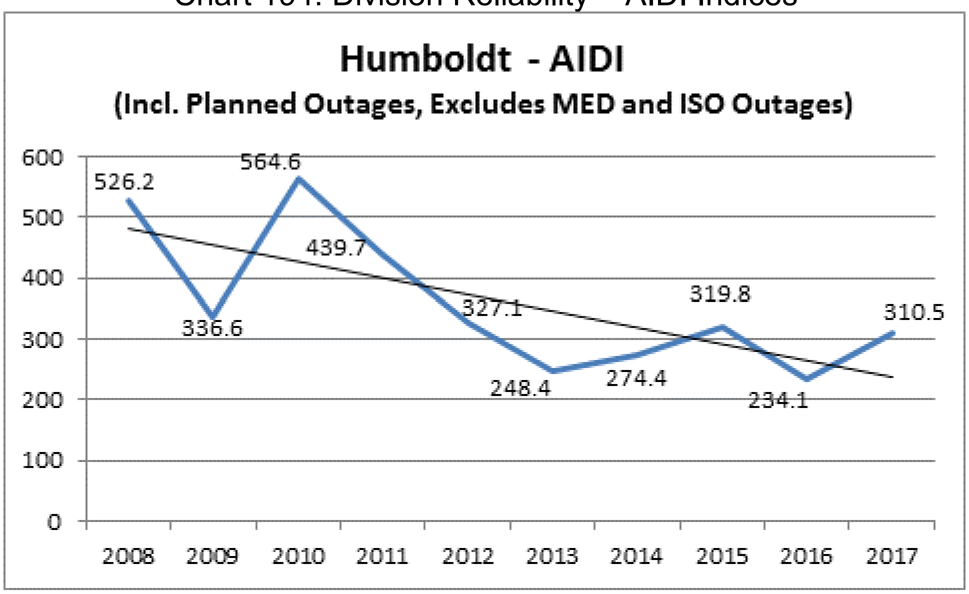


Chart 195: Division Reliability – AIDI Indices

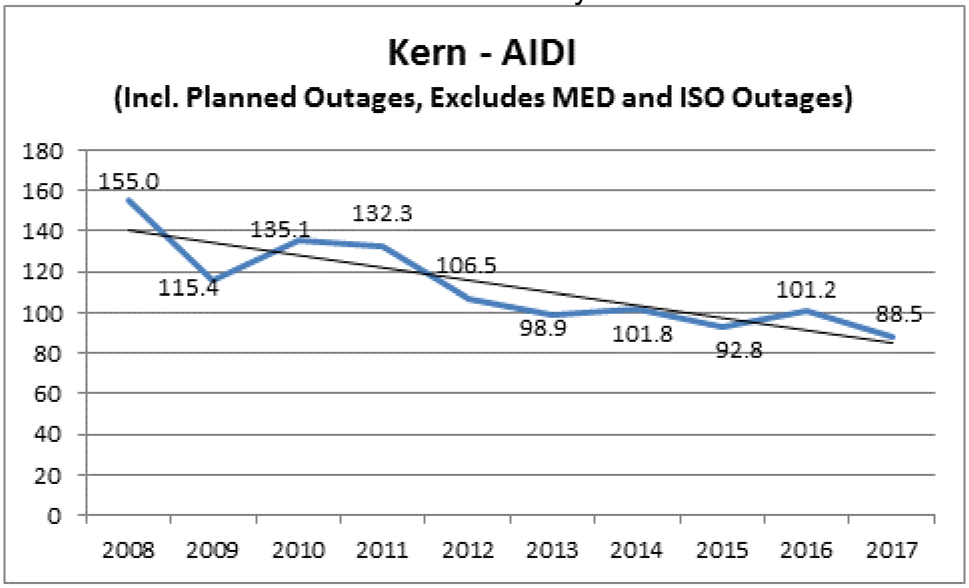


Chart 196: Division Reliability – AIDI Indices

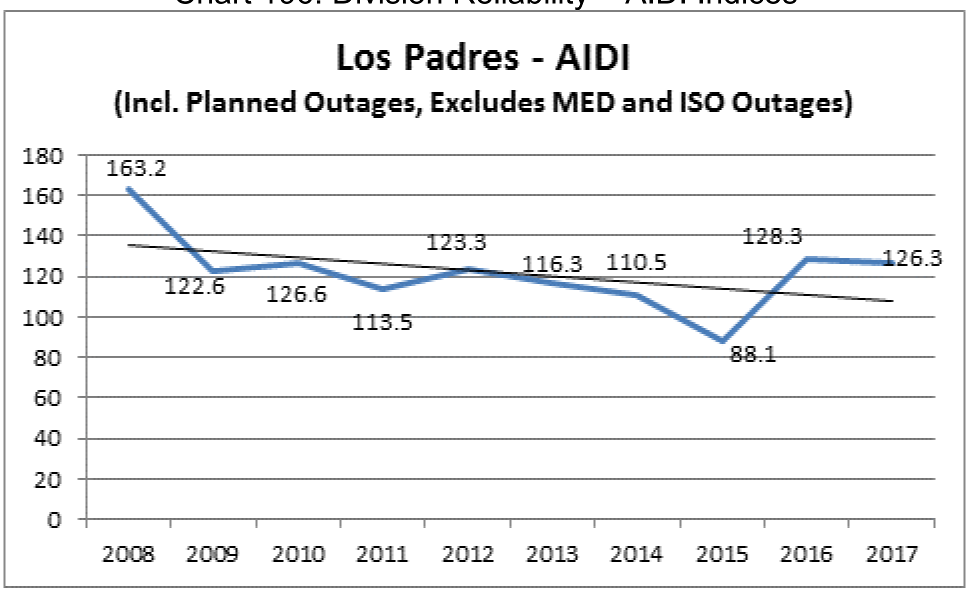


Chart 197: Division Reliability – AIDI Indices

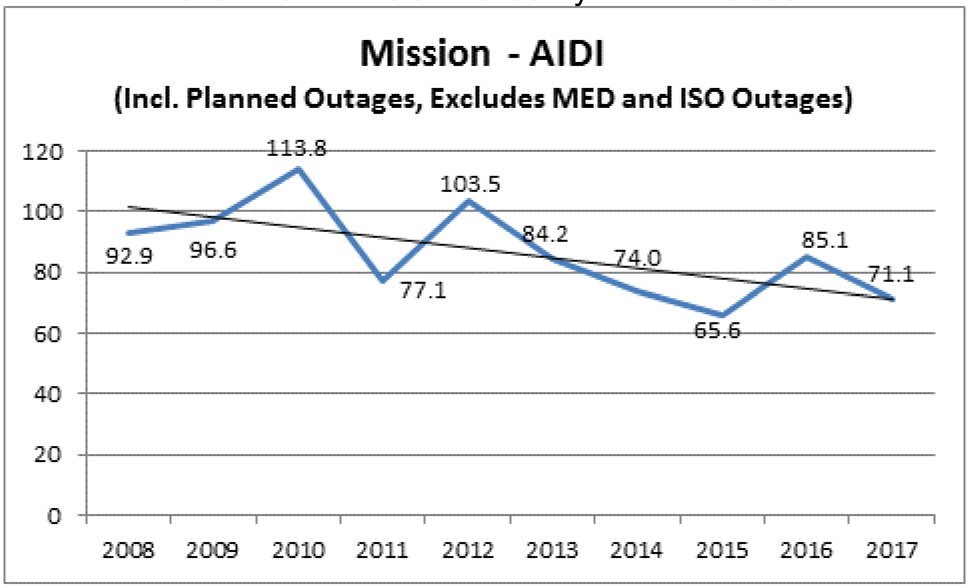


Chart 198: Division Reliability – AIDI Indices

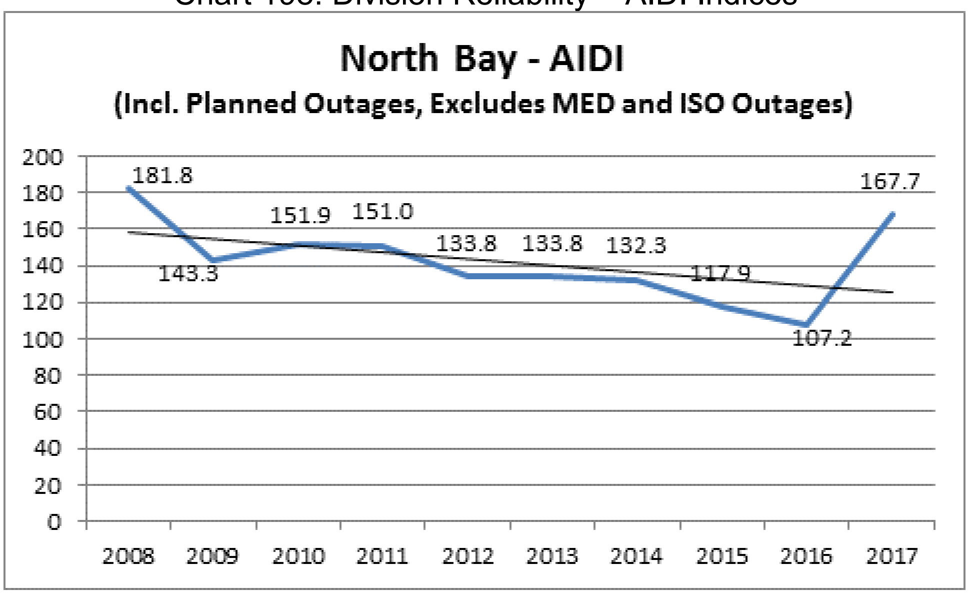


Chart 199: Division Reliability – AIDI Indices

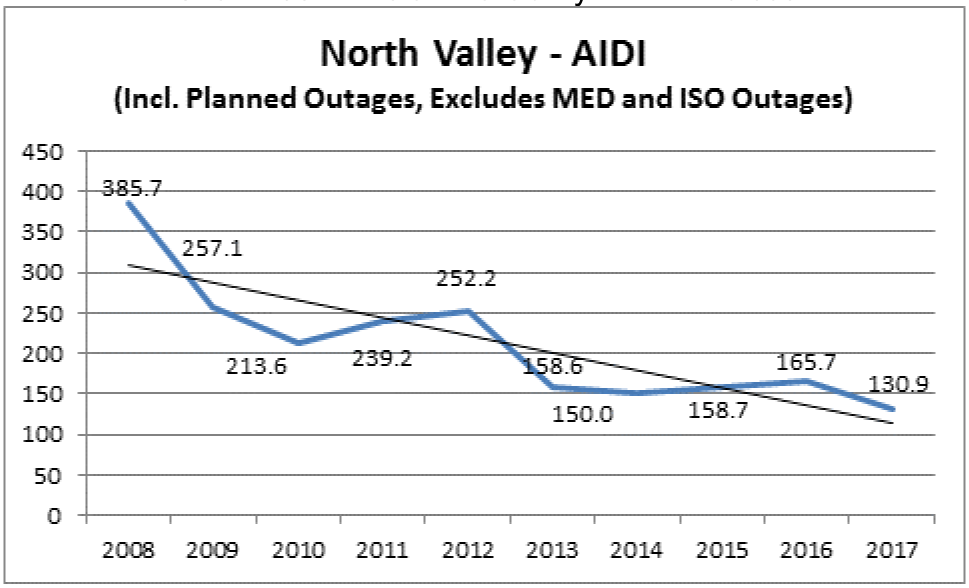


Chart 200: Division Reliability – AIDI Indices

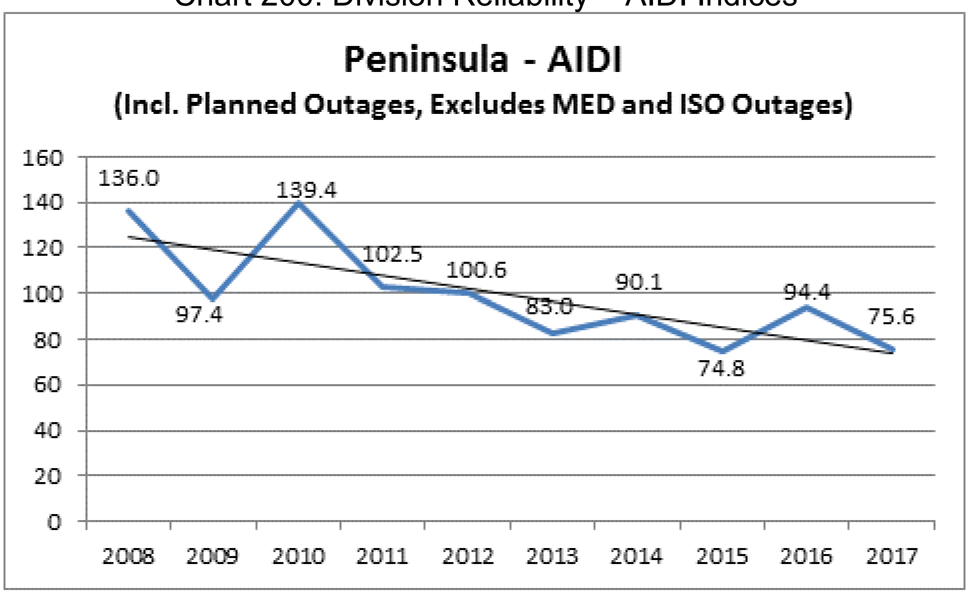


Chart 201: Division Reliability – AIDI Indices

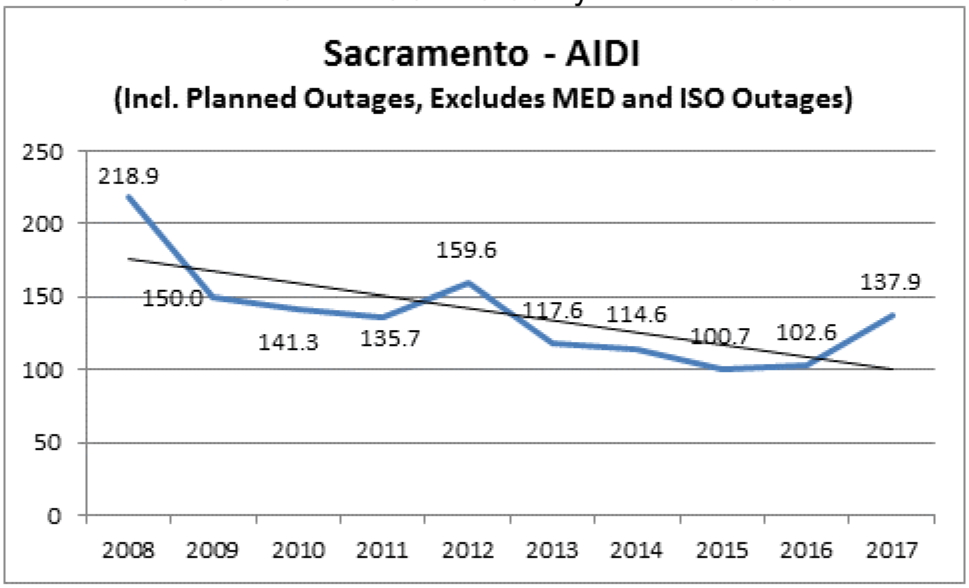


Chart 202: Division Reliability – AIDI Indices

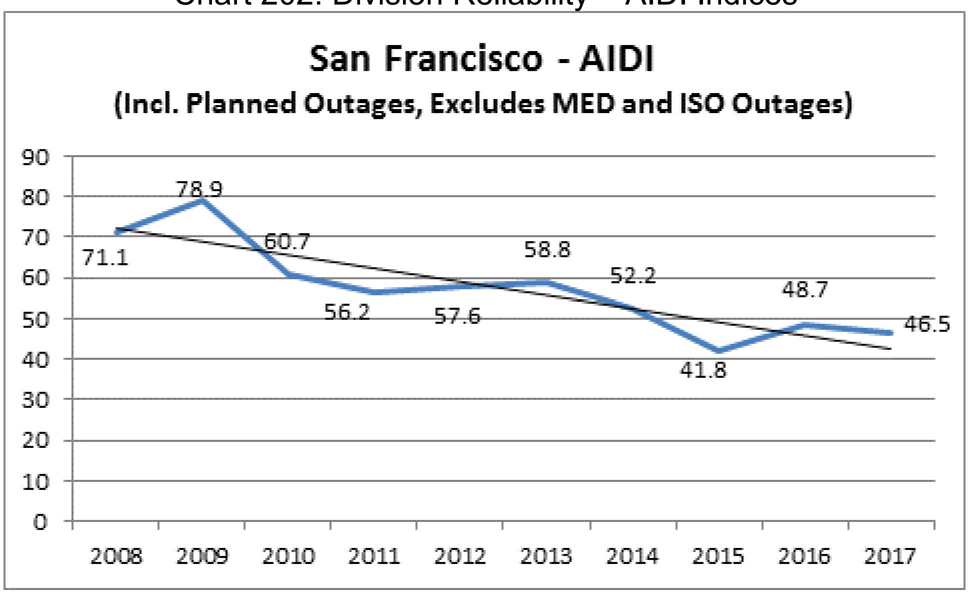


Chart 203: Division Reliability – AIDI Indices

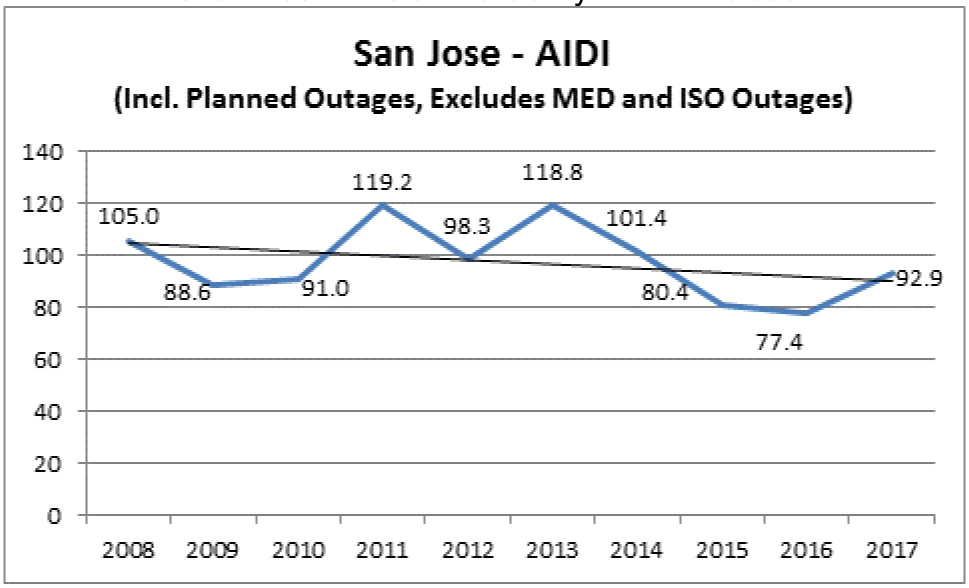


Chart 204: Division Reliability – AIDI Indices

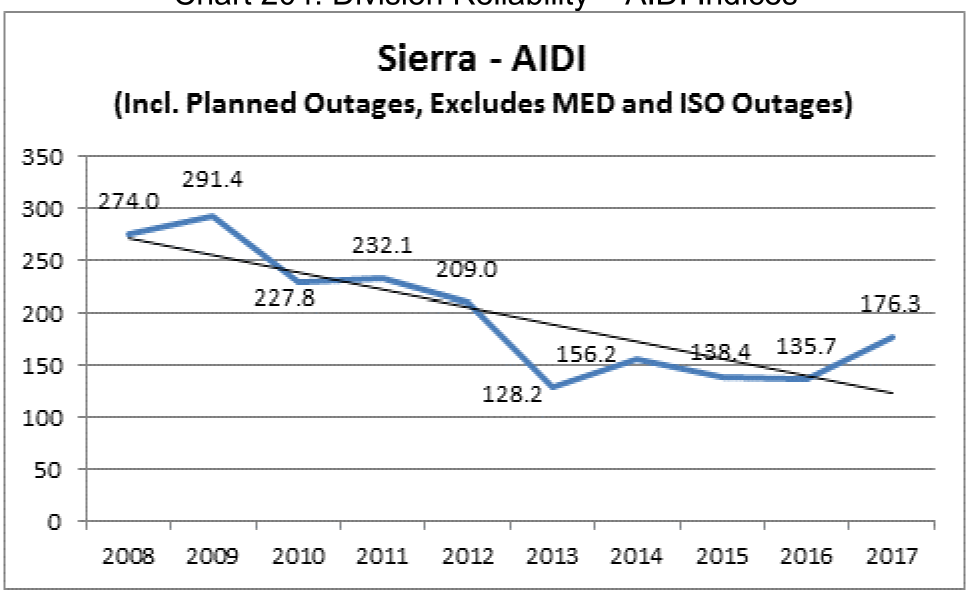


Chart 205: Division Reliability – AIDI Indices

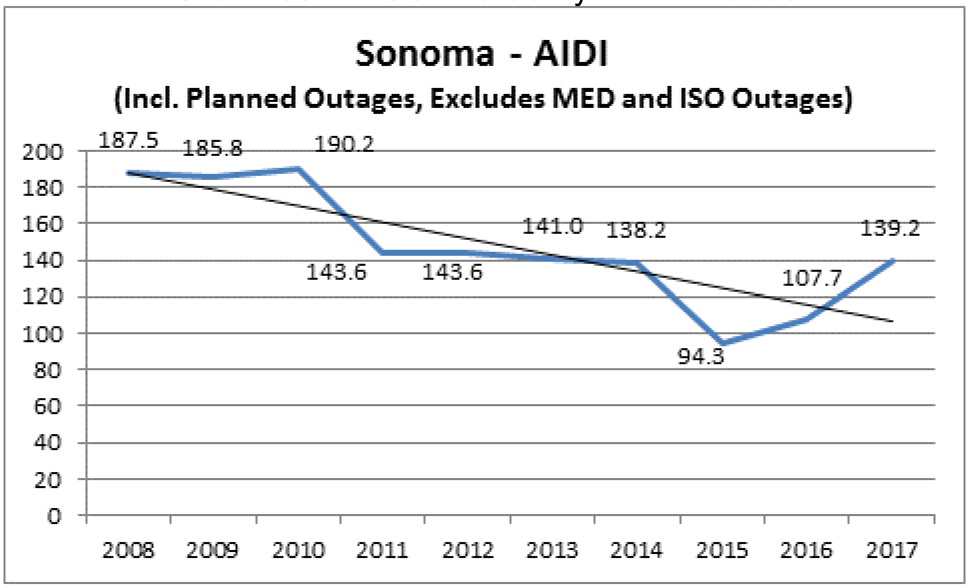


Chart 206: Division Reliability – AIDI Indices

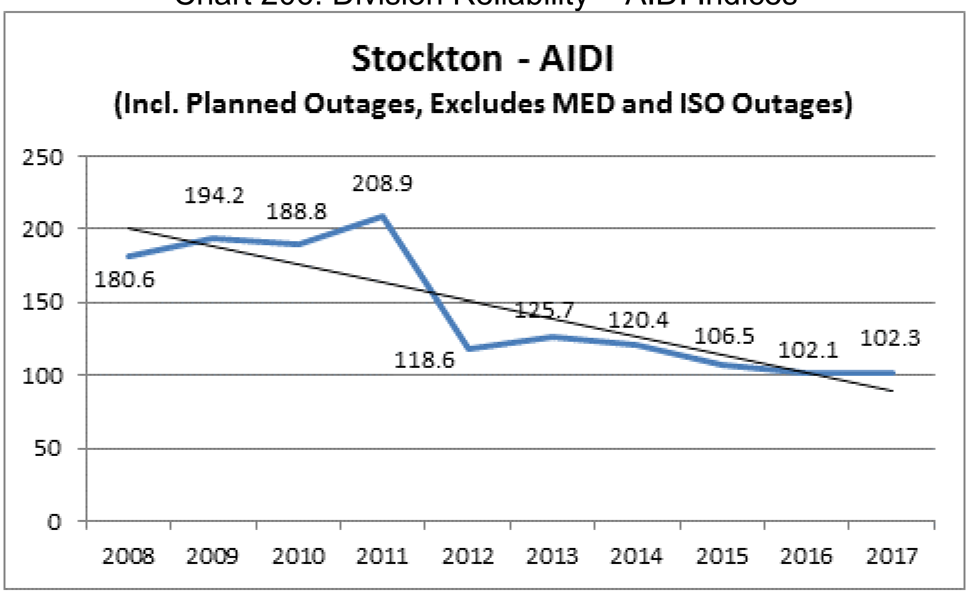


Chart 207: Division Reliability – AIDI Indices

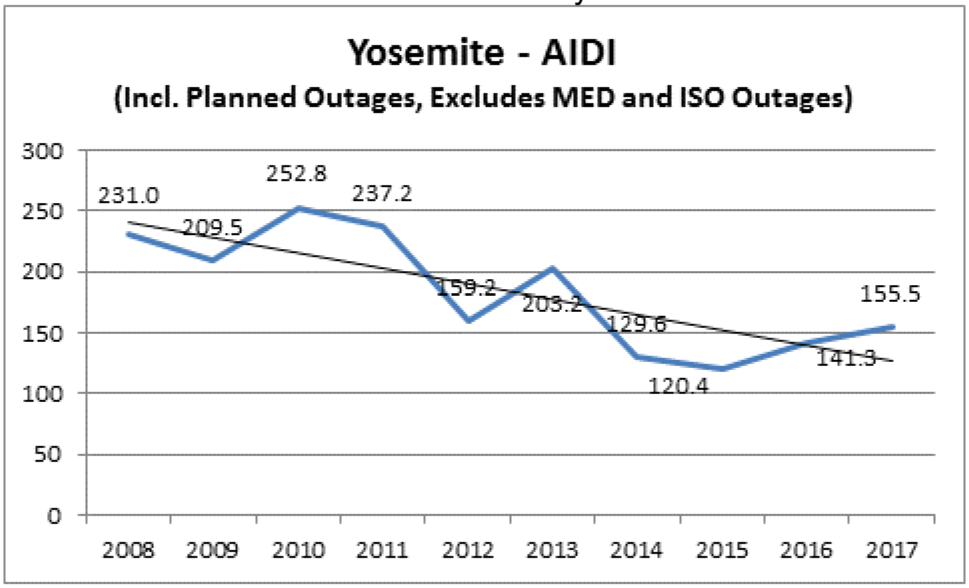
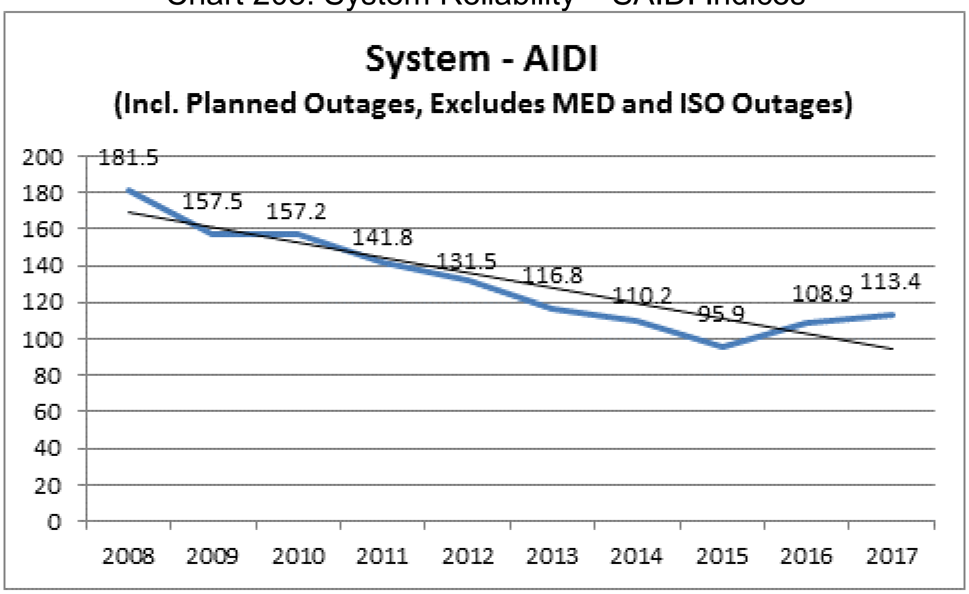


Chart 208: System Reliability – SAIDI Indices



2. SAIFI Performance Results (MED Excluded)

Chart 209: Division Reliability – AIFI Indices

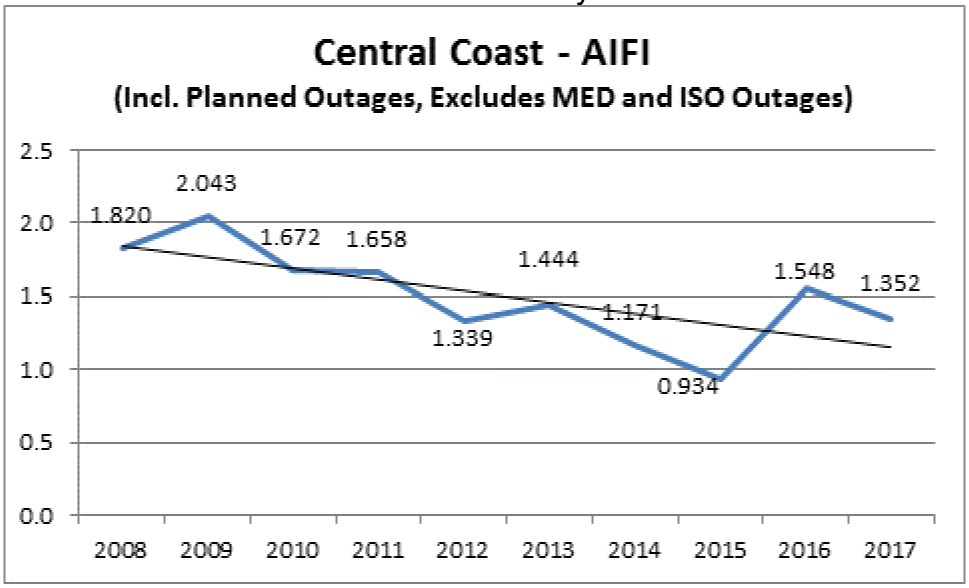


Chart 210: Division Reliability – AIFI Indices

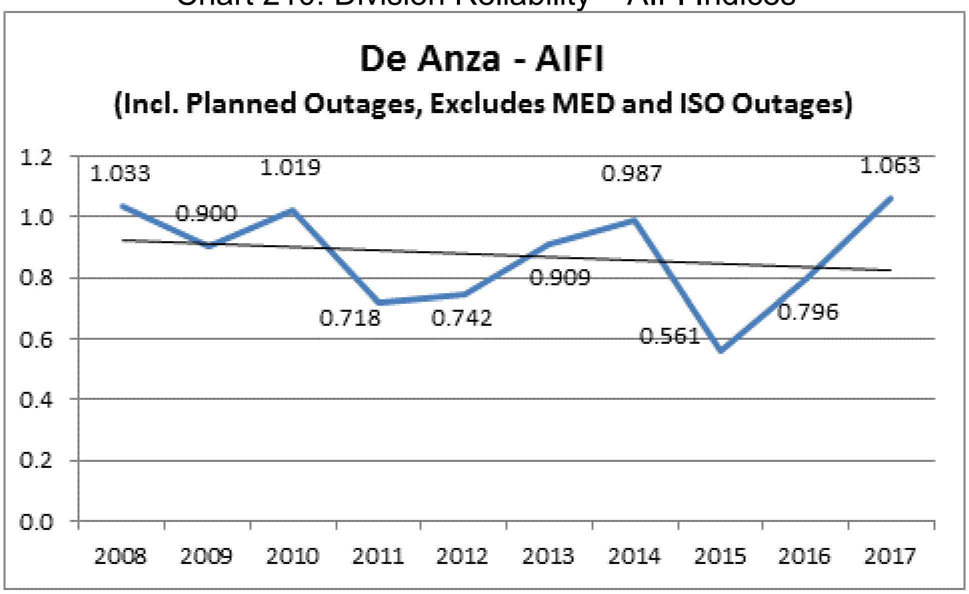


Chart 211: Division Reliability – AIFI Indices

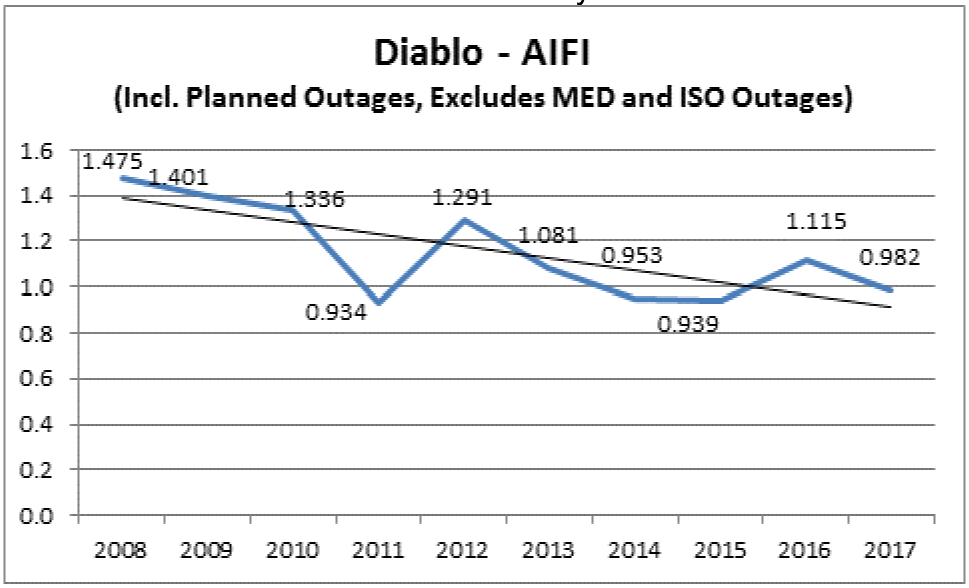


Chart 212: Division Reliability – AIFI Indices

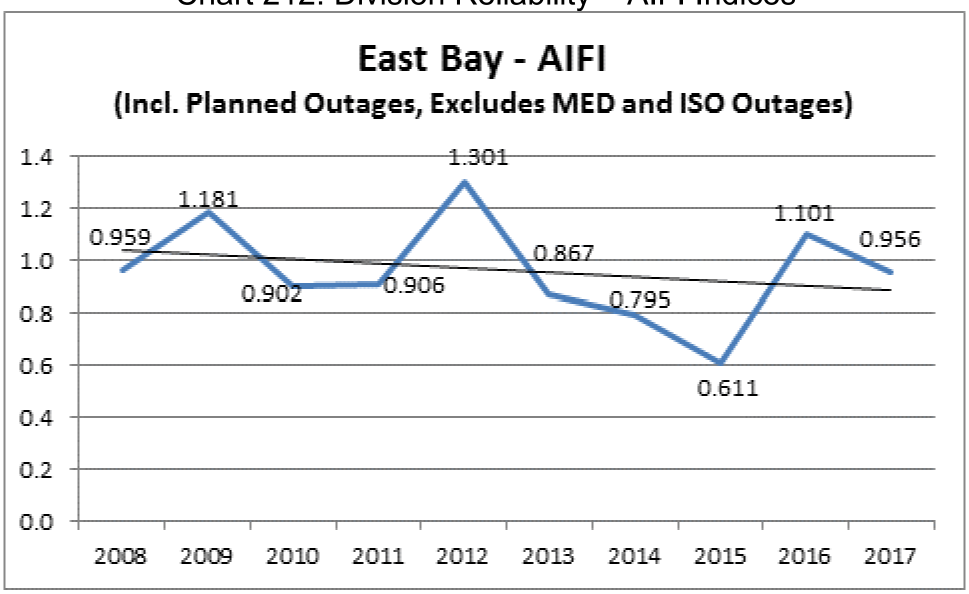


Chart 213: Division Reliability – AIFI Indices

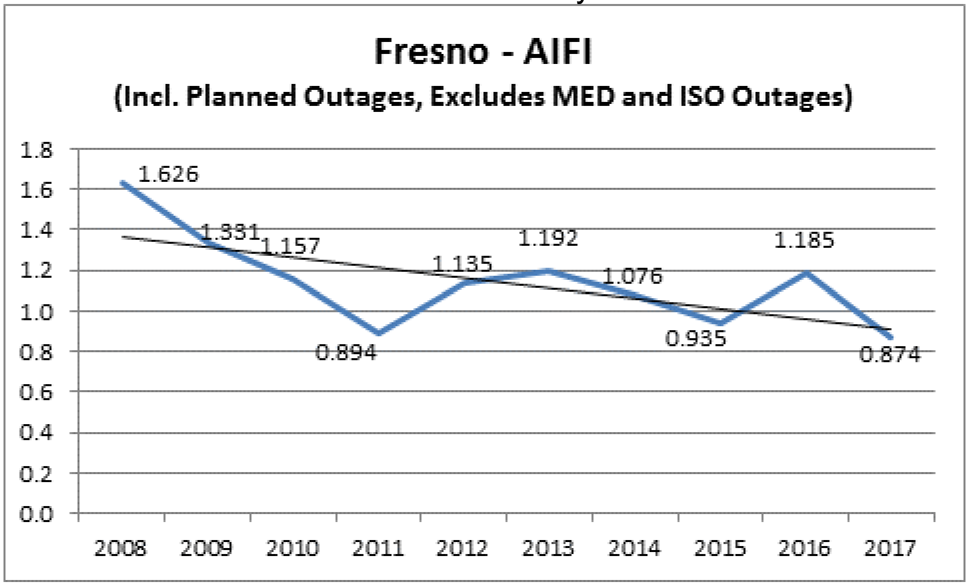


Chart 214: Division Reliability – AIFI Indices

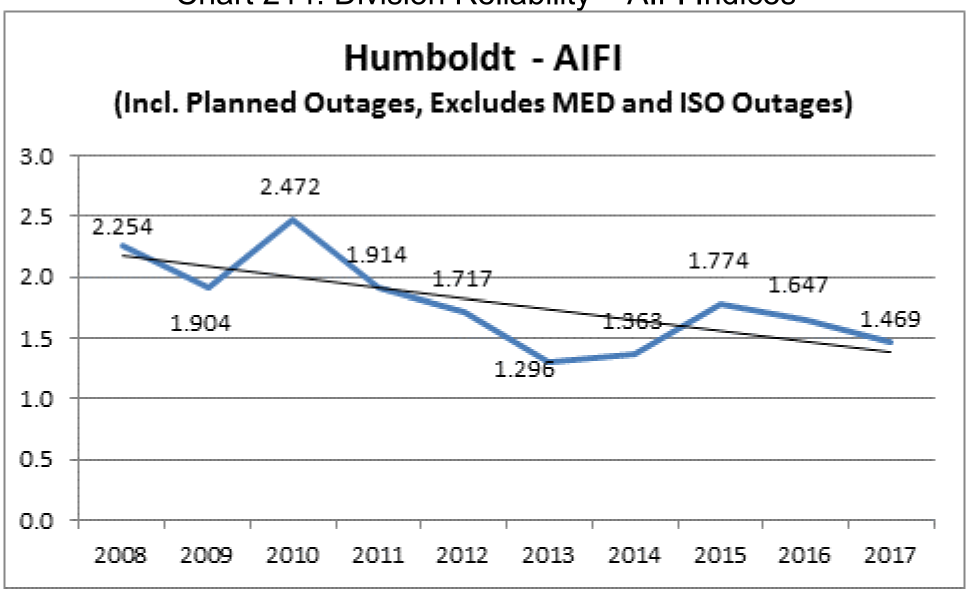


Chart 215: Division Reliability – AIFI Indices

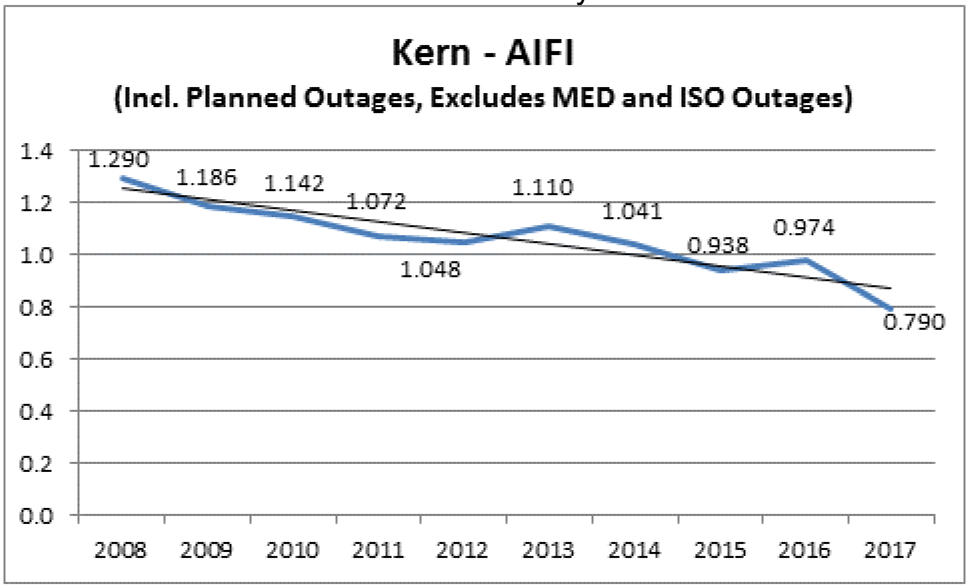


Chart 216: Division Reliability – AIFI Indices

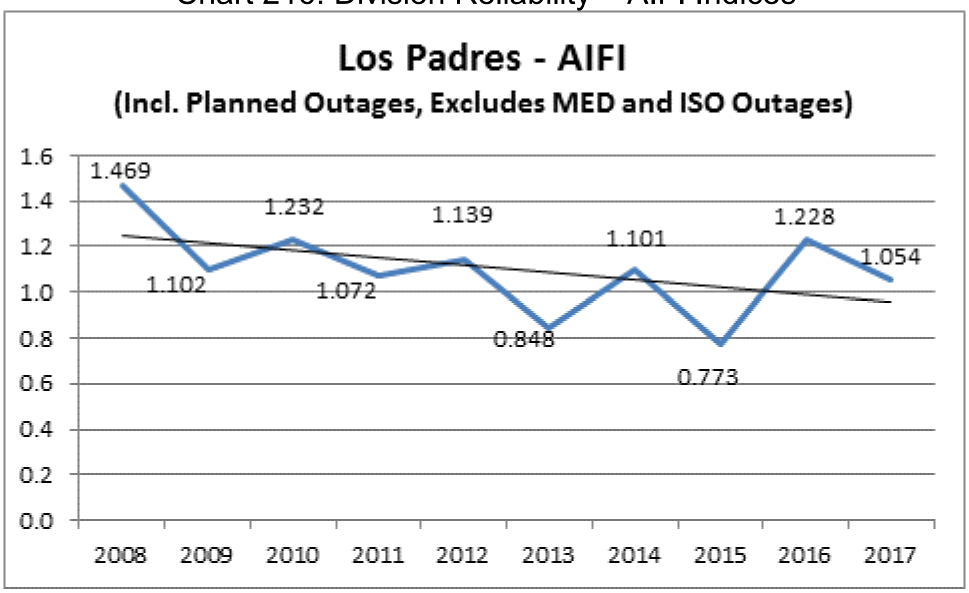


Chart 217: Division Reliability – AIFI Indices

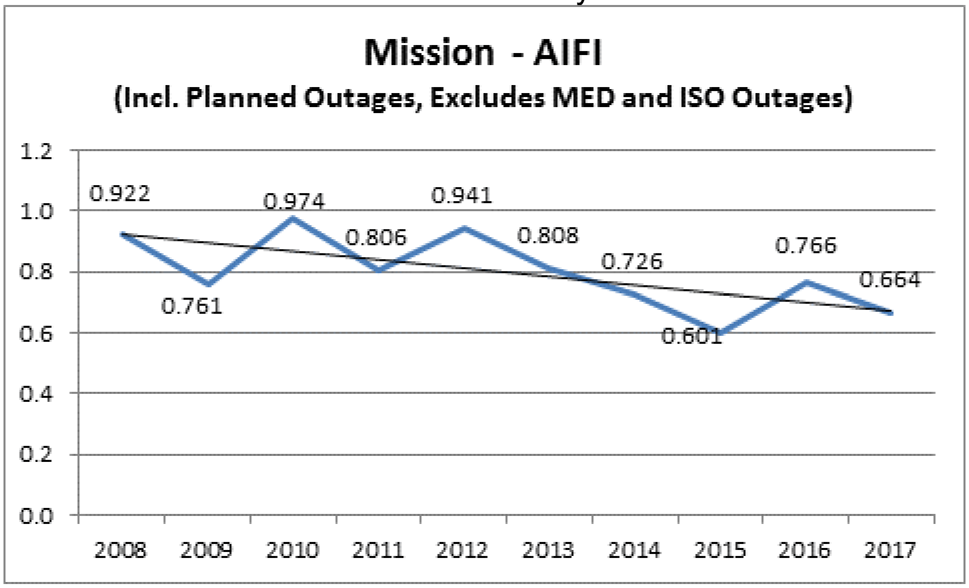


Chart 218: Division Reliability – AIFI Indices

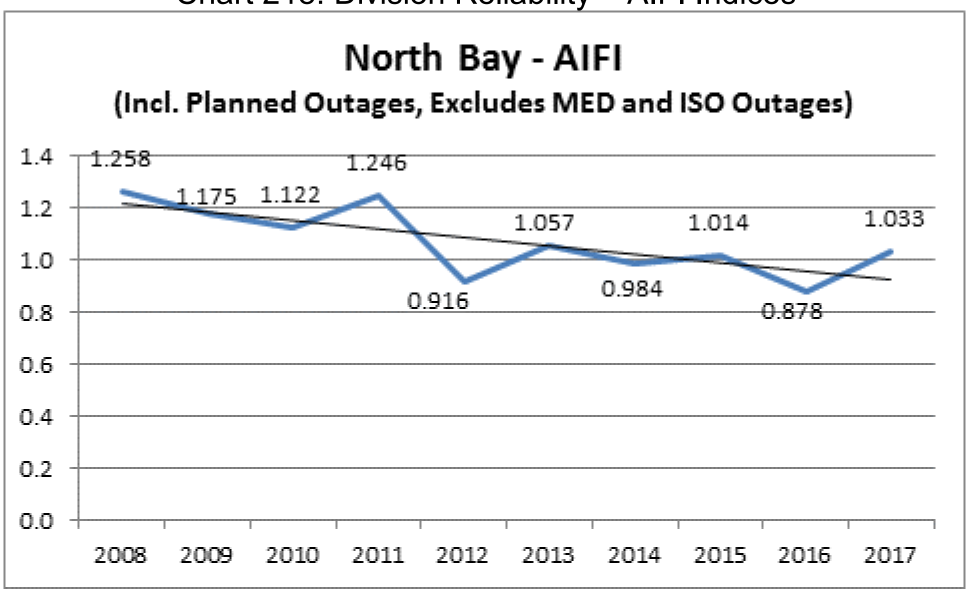


Chart 219: Division Reliability – AIFI Indices

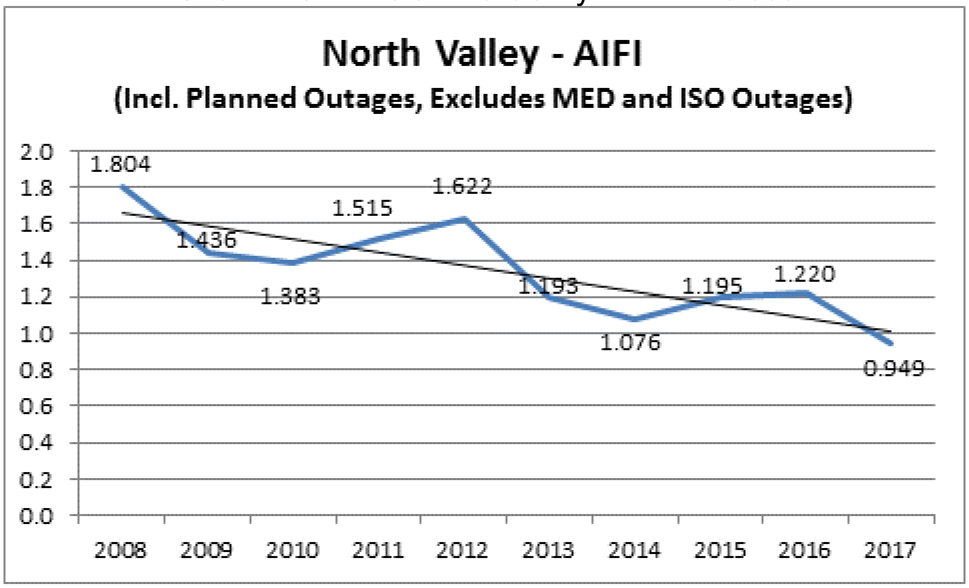


Chart 220: Division Reliability – AIFI Indices

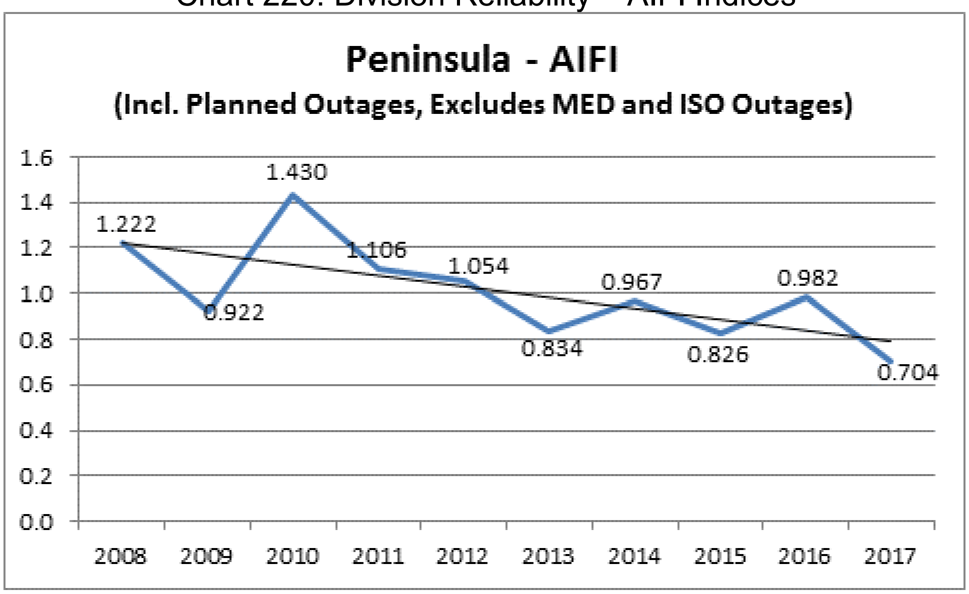


Chart 221: Division Reliability – AIFI Indices

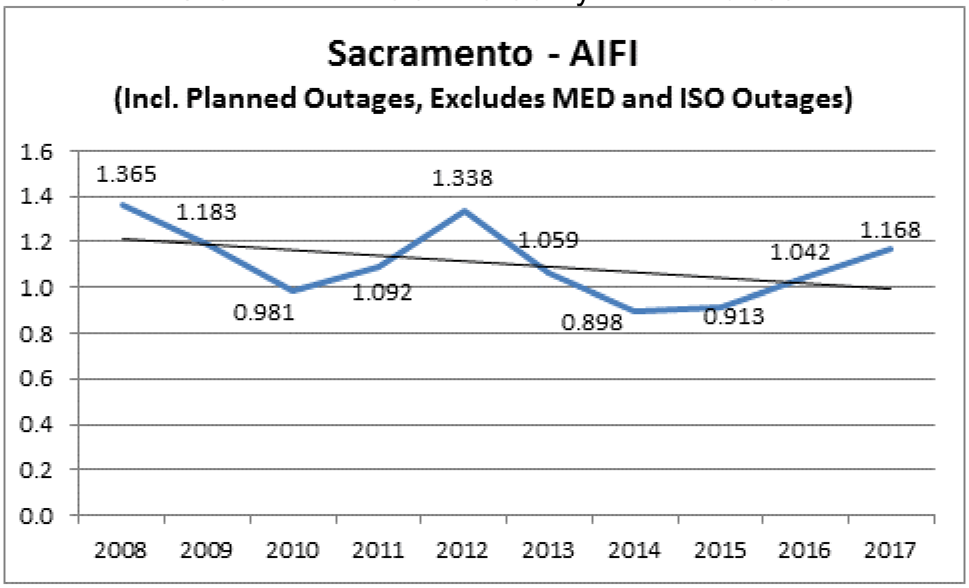


Chart 222: Division Reliability – AIFI Indices

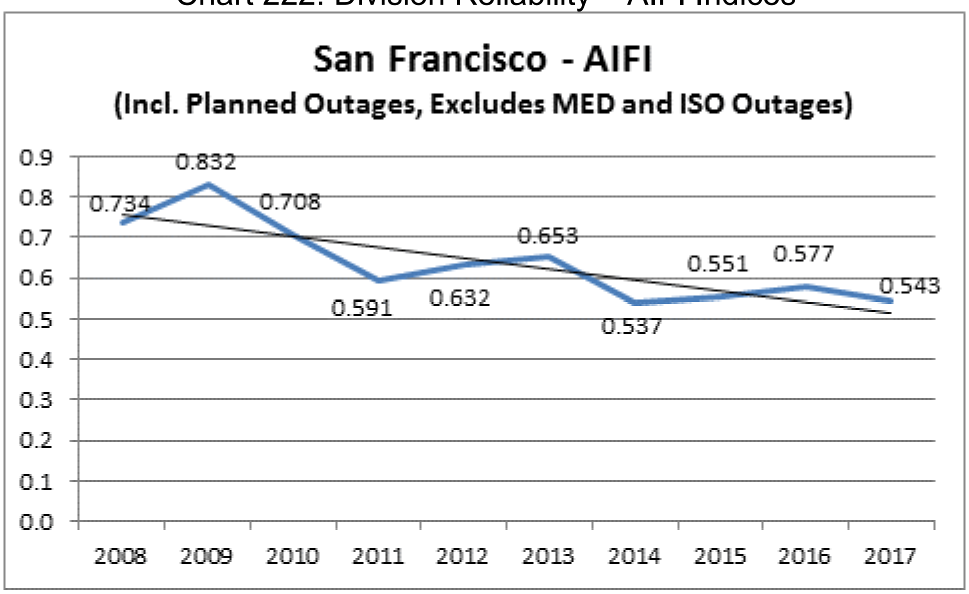


Chart 223: Division Reliability – AIFI Indices

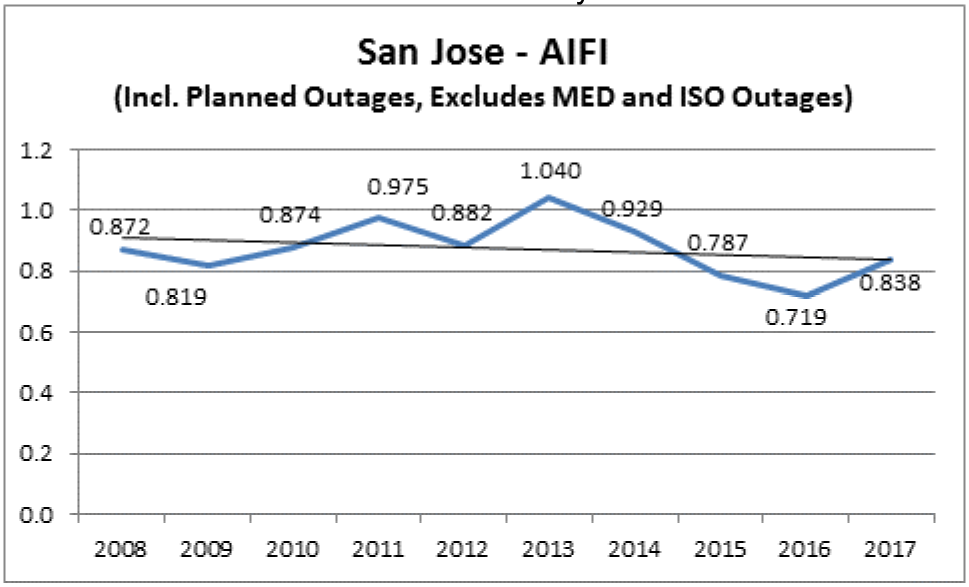


Chart 224: Division Reliability – AIFI Indices

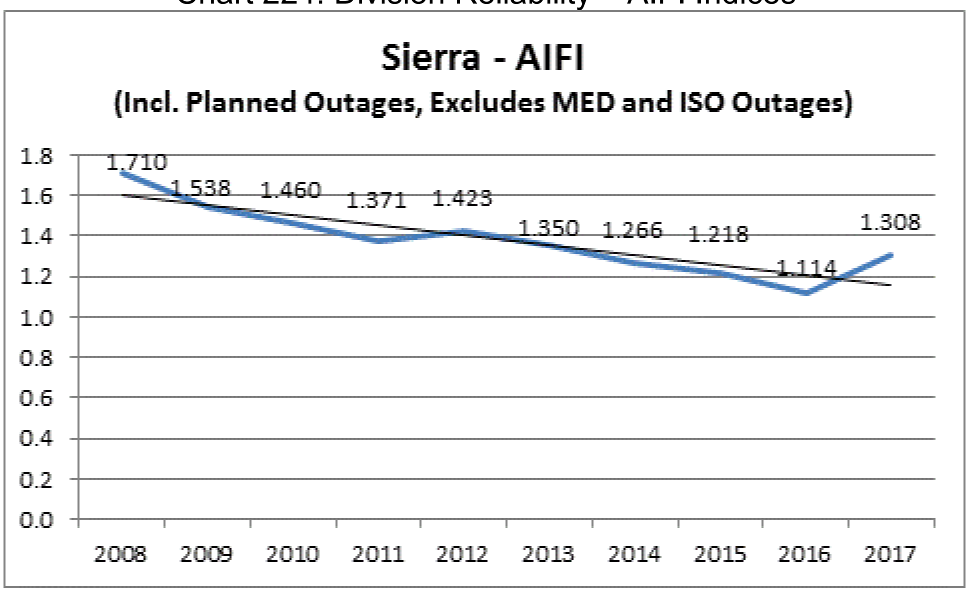


Chart 225: Division Reliability – AIFI Indices

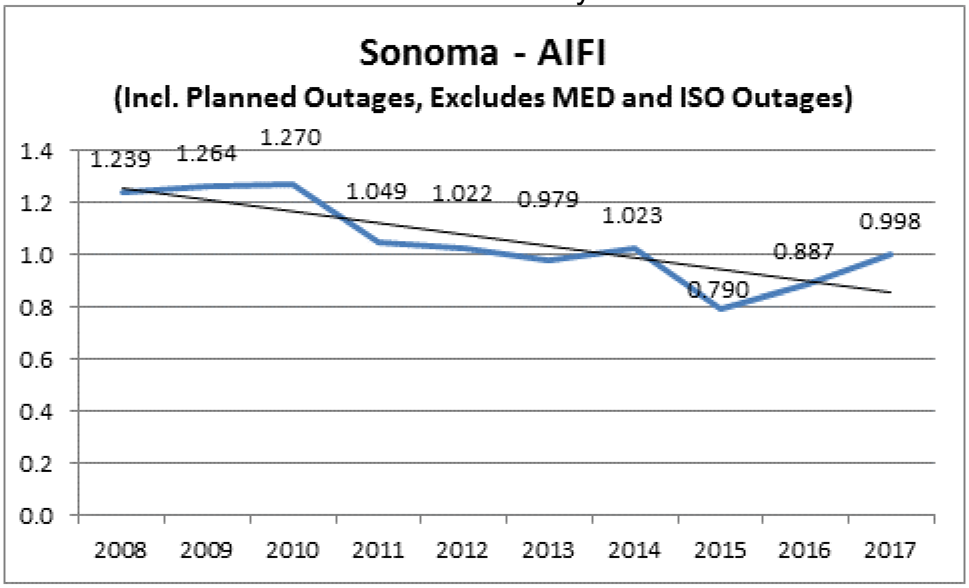


Chart 226: Division Reliability – AIFI Indices

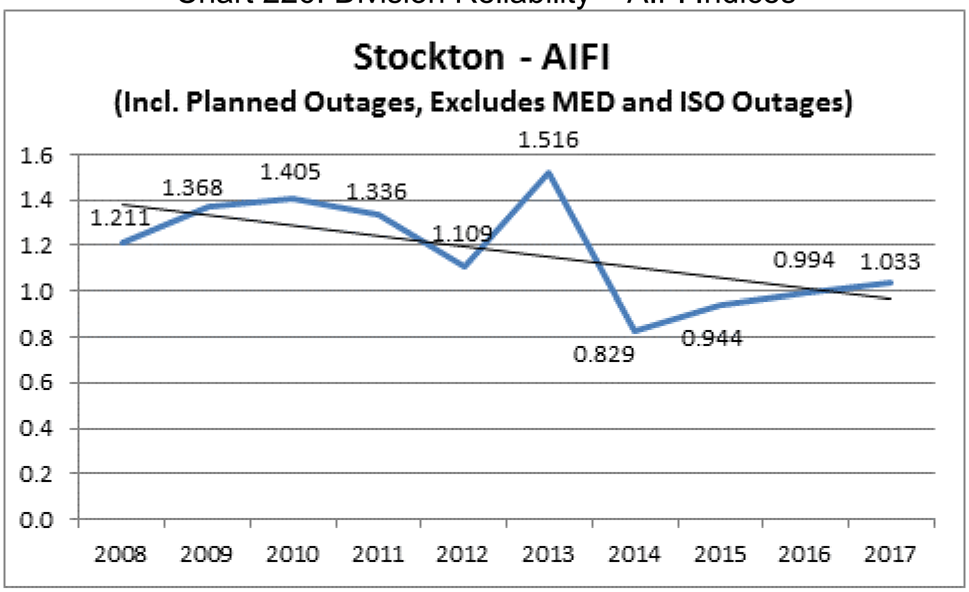


Chart 227: Division Reliability – AIFI Indices

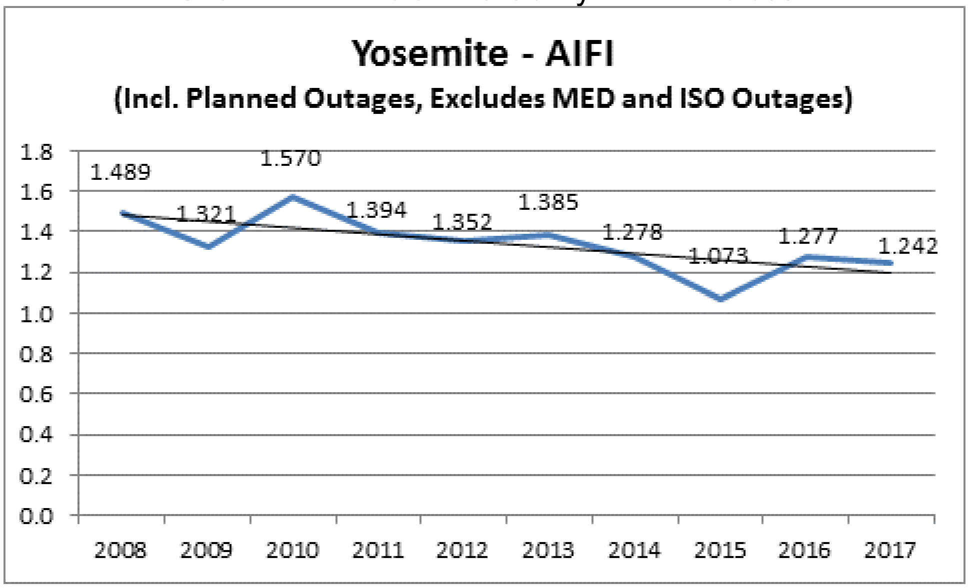
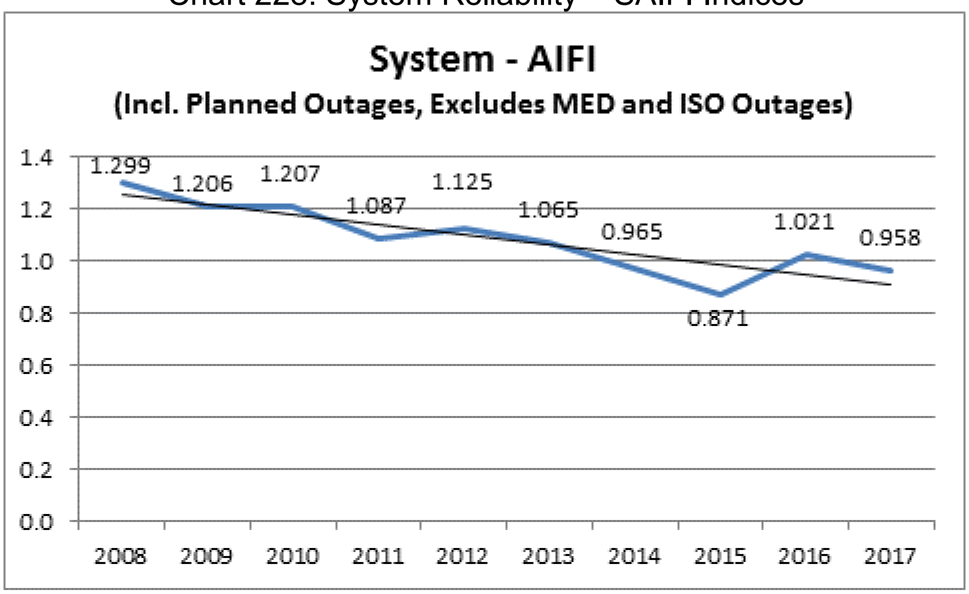


Chart 228: System Reliability – SAIFI Indices



3. MAIFI[10] Performance Results <u>(MED Excluded)</u>

Chart 229: Division Reliability – MAIFI Indices

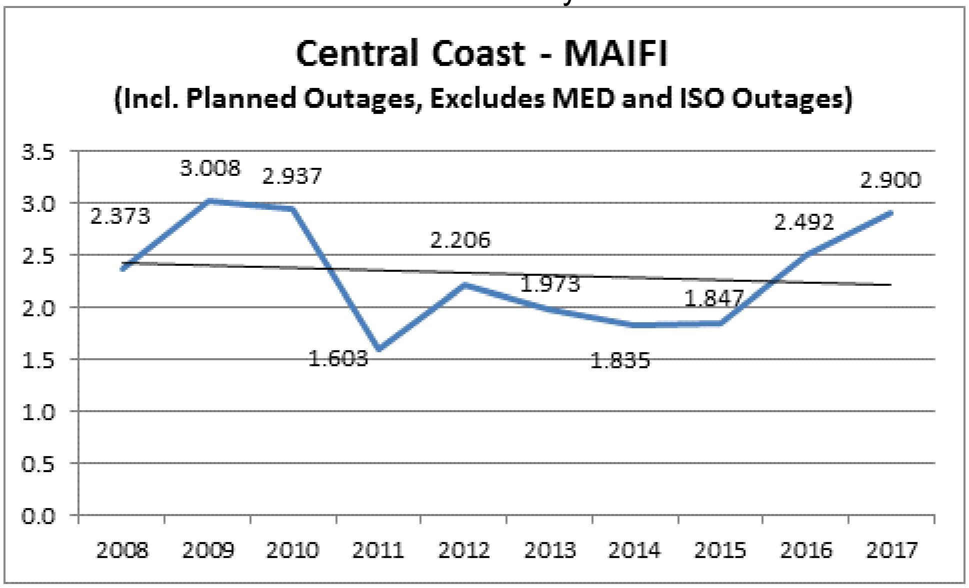
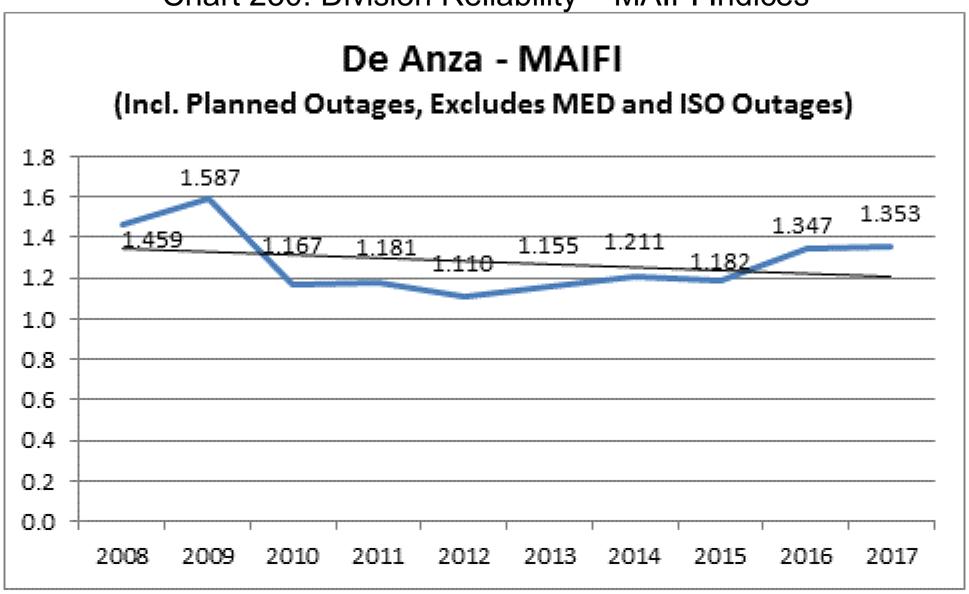


Chart 230: Division Reliability – MAIFI Indices



10 See footnote 4.

Chart 231: Division Reliability – MAIFI Indices

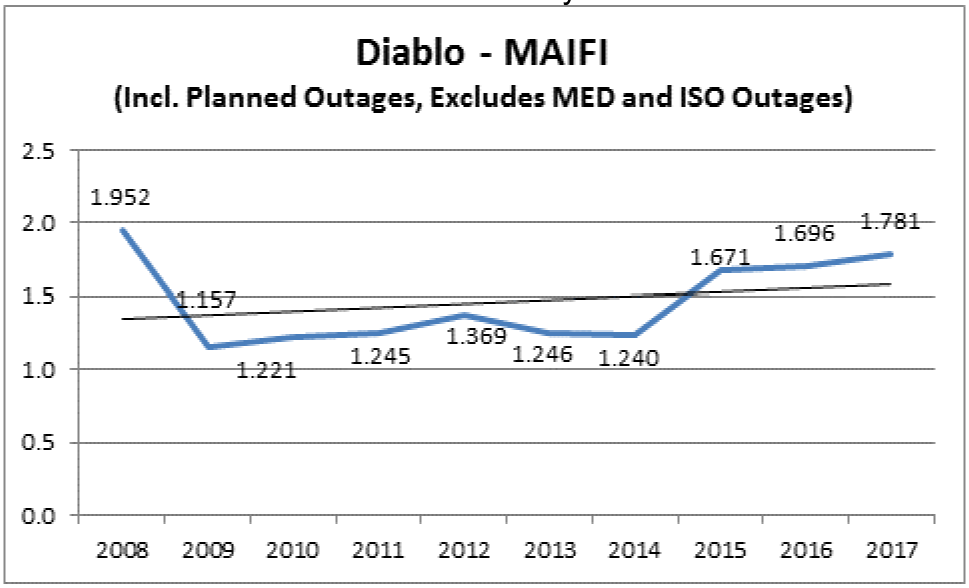


Chart 232: Division Reliability – MAIFI Indices

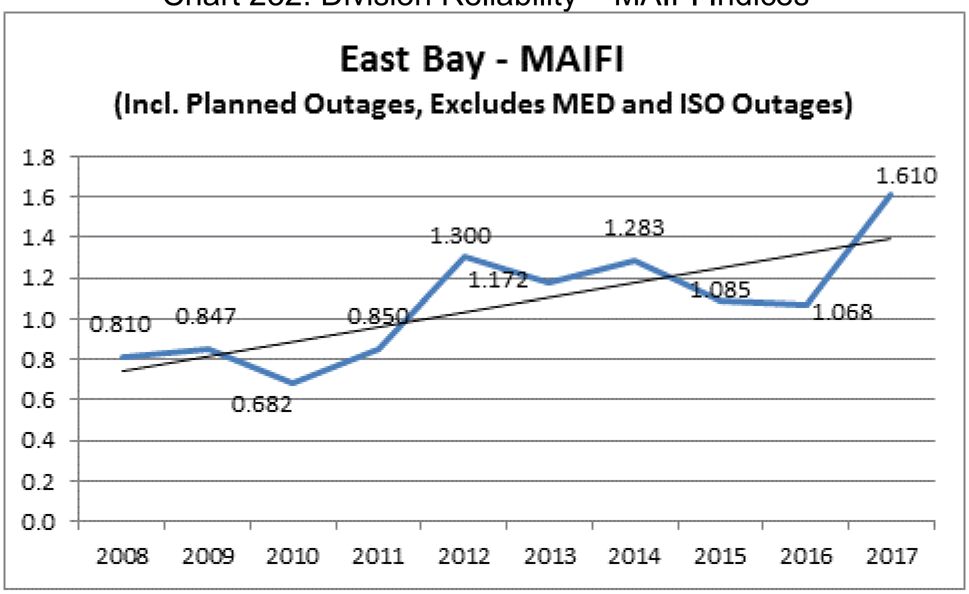


Chart 233: Division Reliability – MAIFI Indices

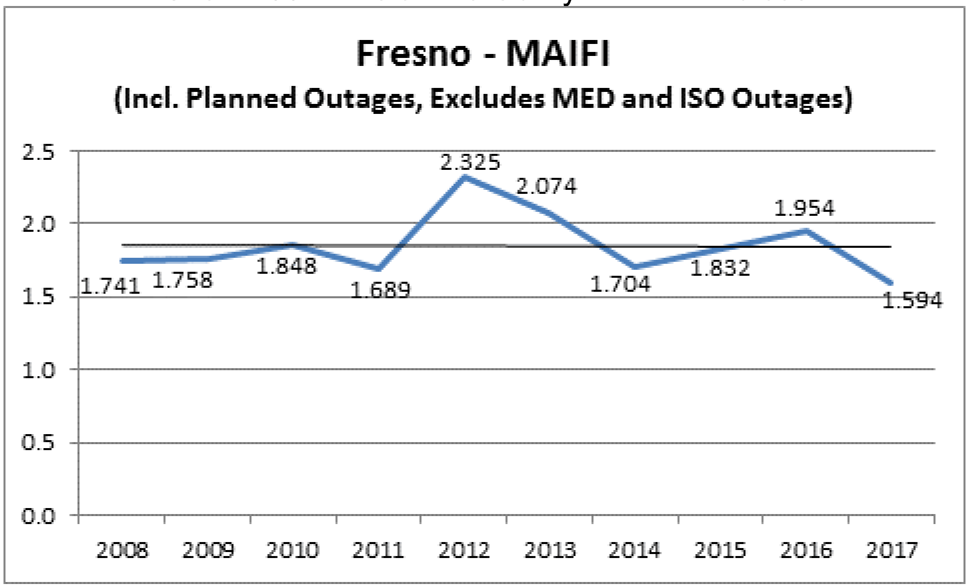


Chart 234: Division Reliability – MAIFI Indices

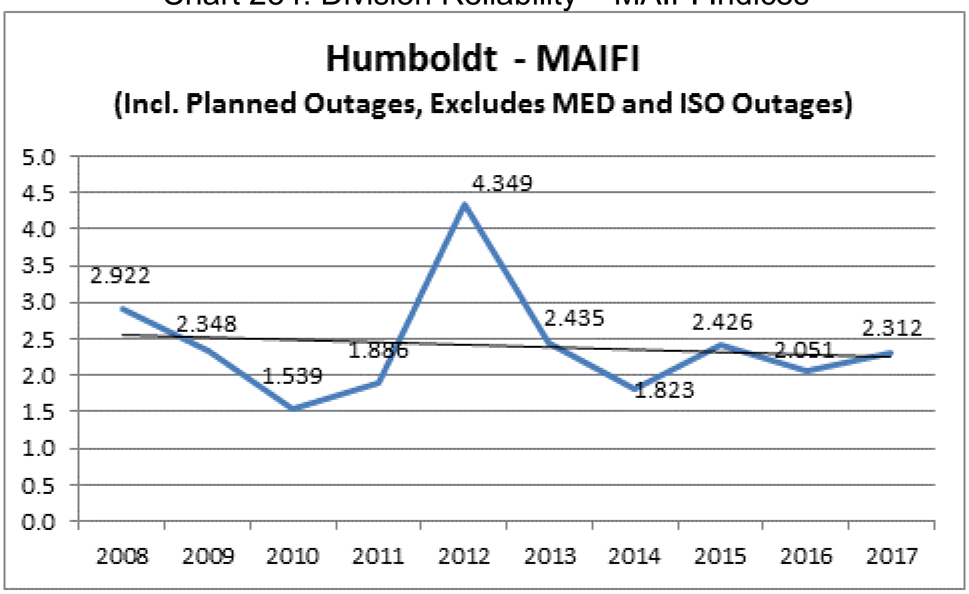


Chart 235: Division Reliability – MAIFI Indices

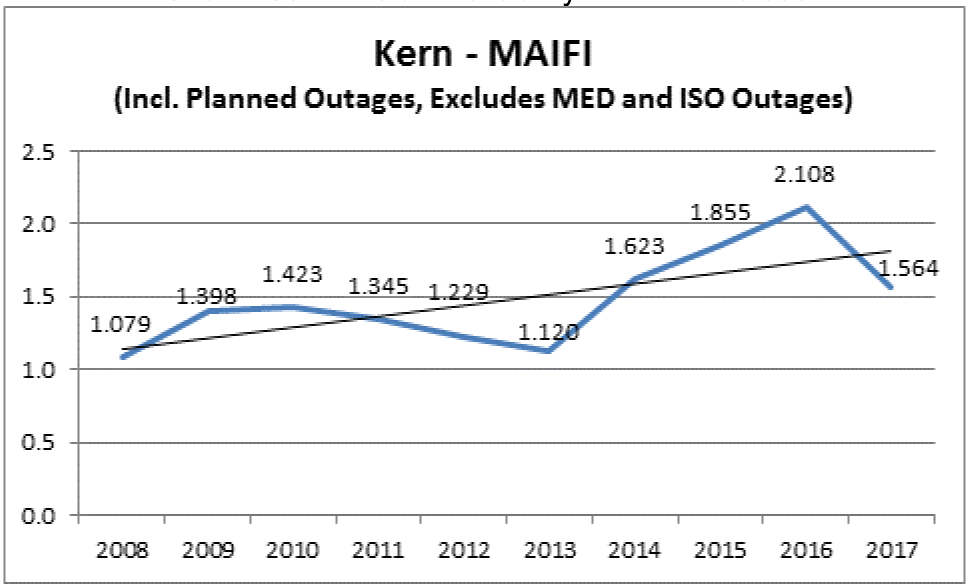


Chart 236: Division Reliability – MAIFI Indices

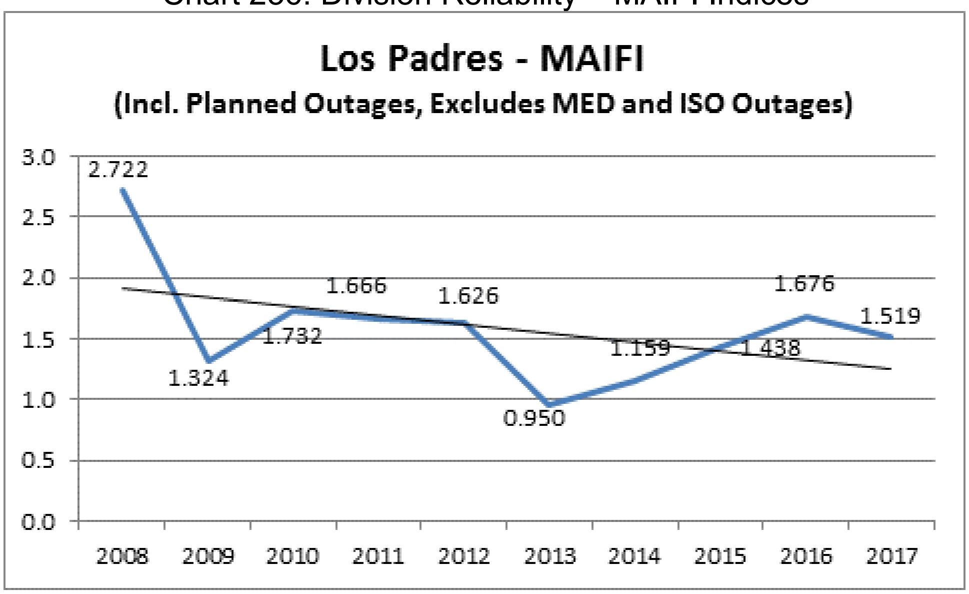


Chart 237: Division Reliability – MAIFI Indices

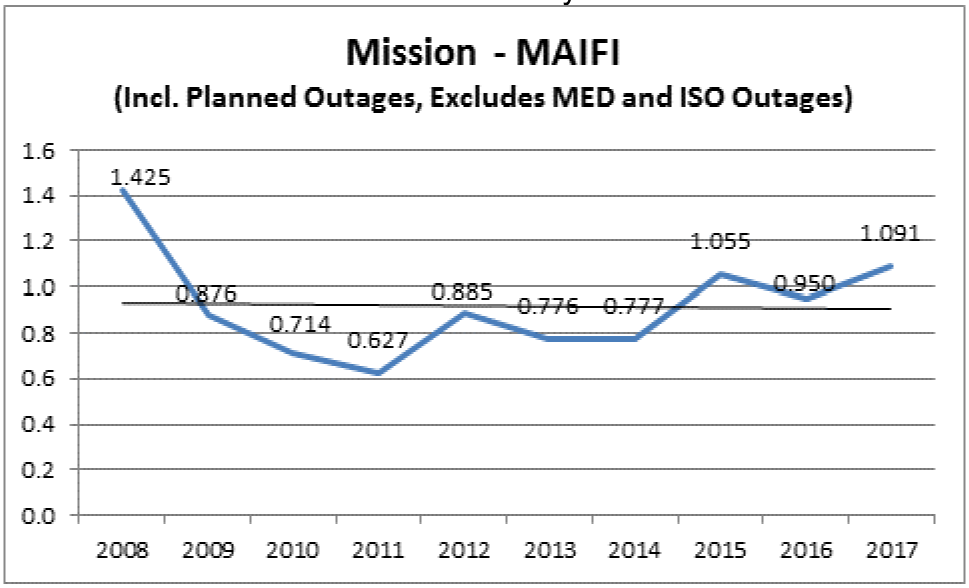


Chart 238: Division Reliability – MAIFI Indices

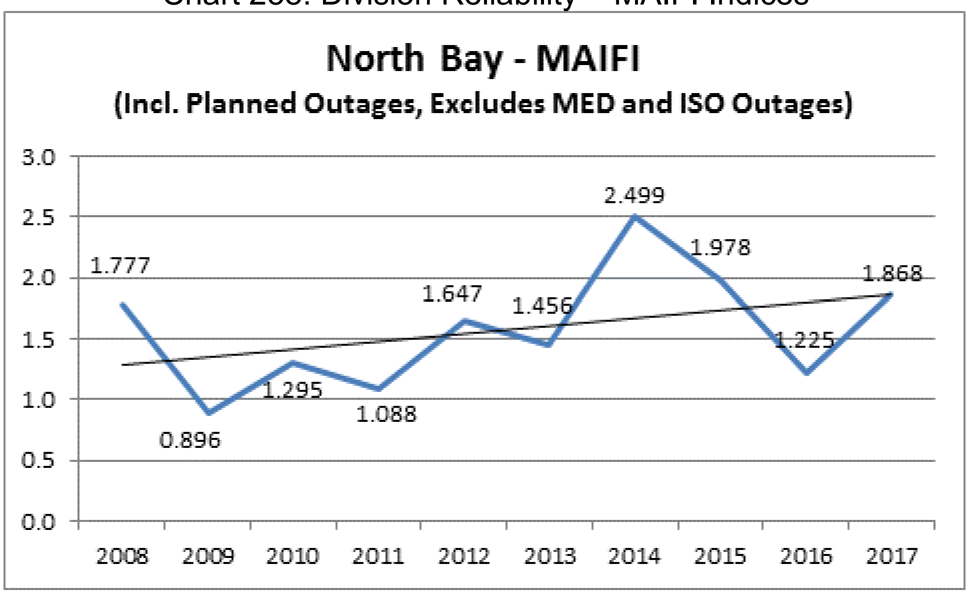


Chart 239: Division Reliability – MAIFI Indices

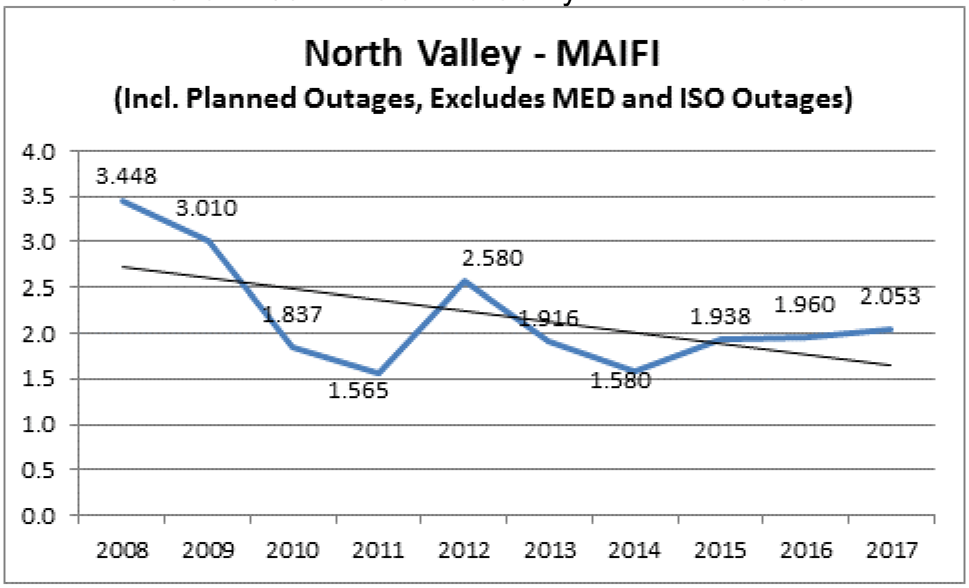


Chart 240: Division Reliability – MAIFI Indices

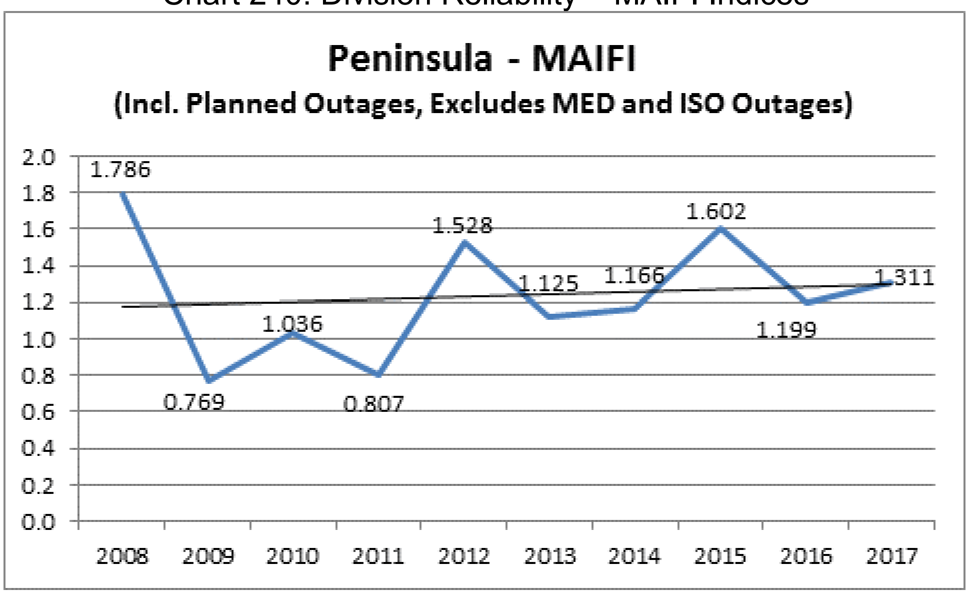


Chart 241: Division Reliability – MAIFI Indices

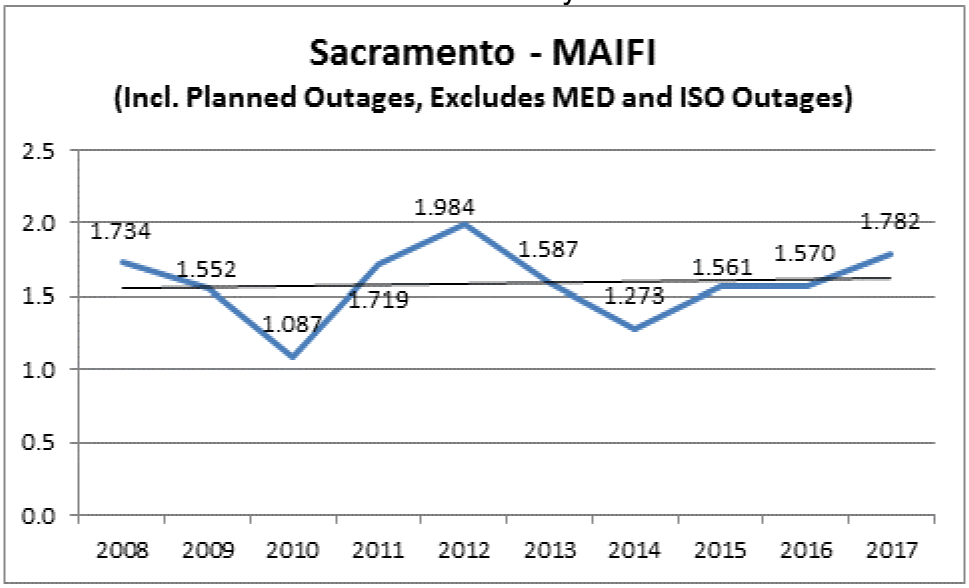


Chart 242: Division Reliability – MAIFI Indices

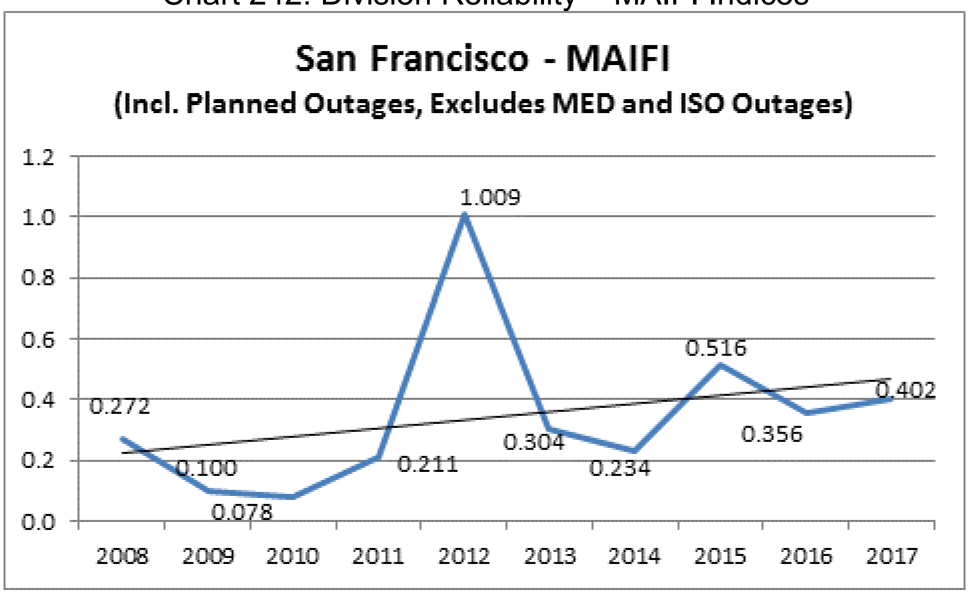


Chart 243: Division Reliability – MAIFI Indices

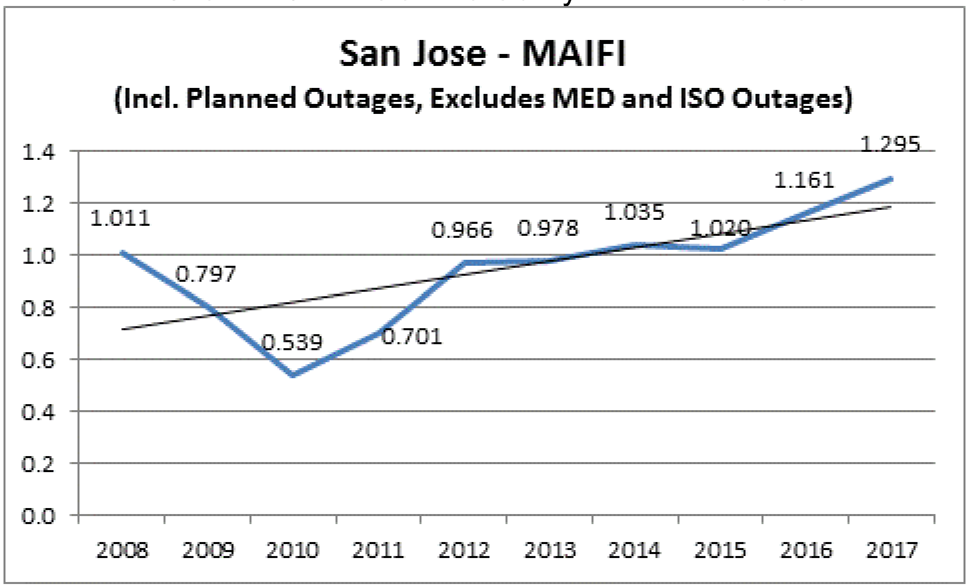


Chart 244: Division Reliability – MAIFI Indices

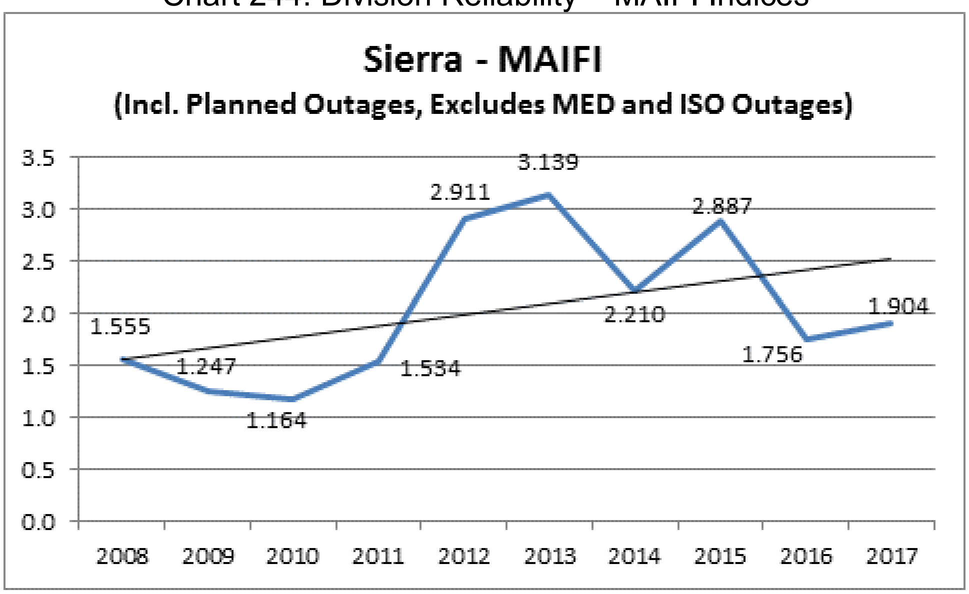


Chart 245: Division Reliability – MAIFI Indices

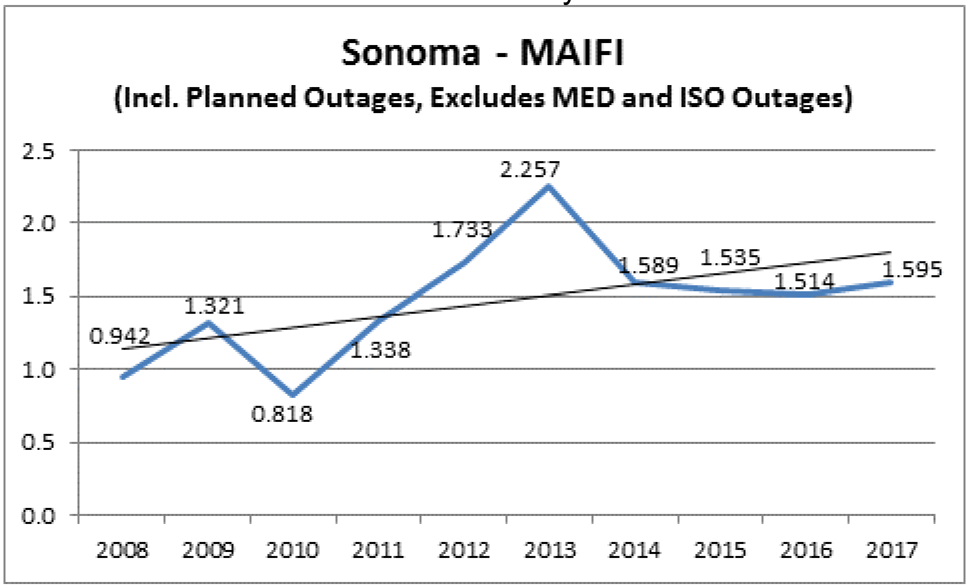


Chart 246: Division Reliability – MAIFI Indices

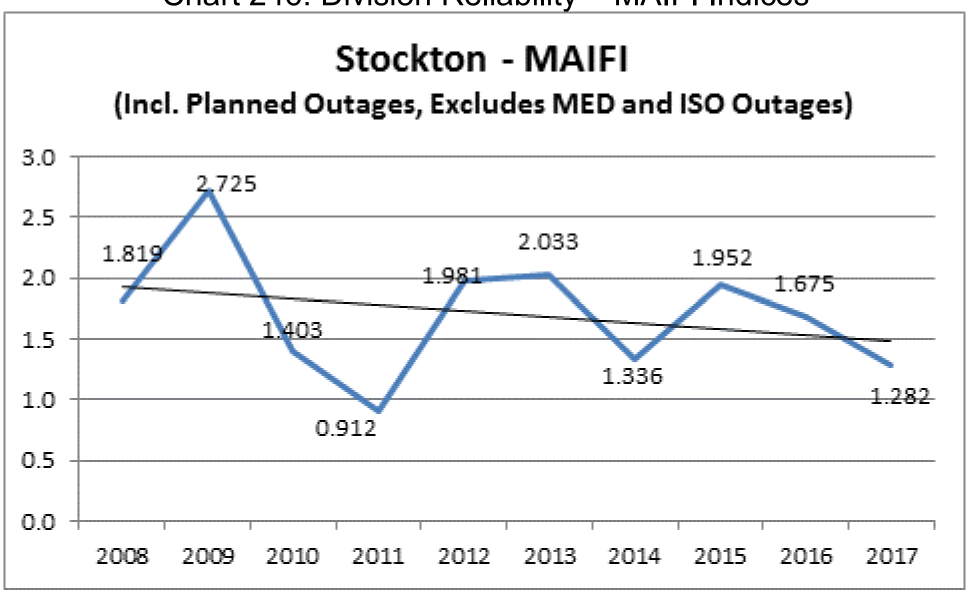


Chart 247: Division Reliability – MAIFI Indices

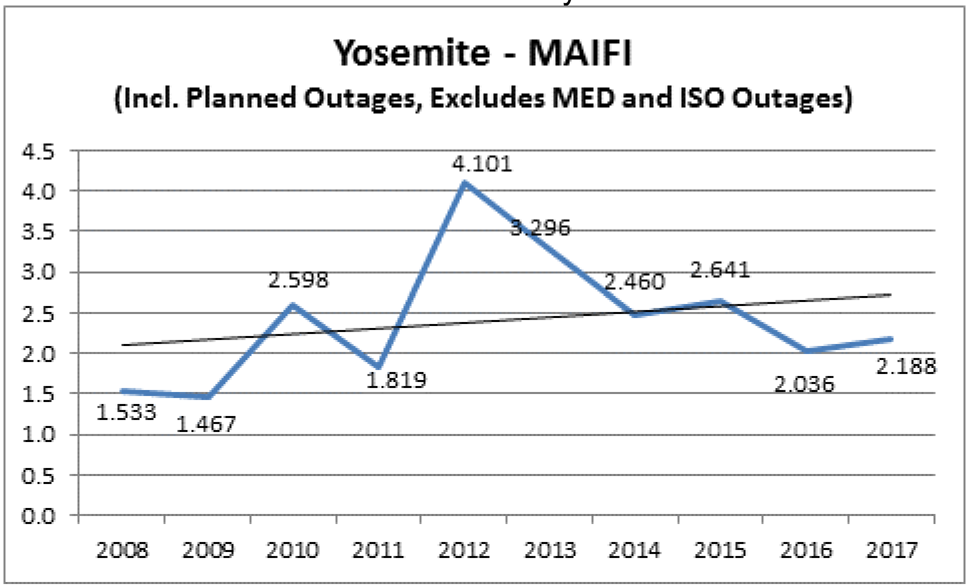
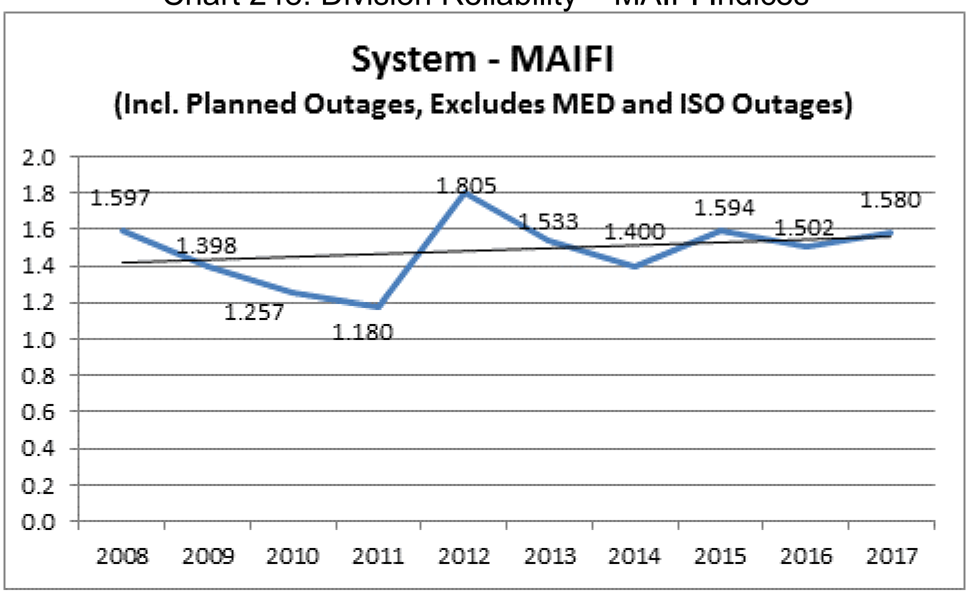


Chart 248: Division Reliability – MAIFI Indices



4. CAIDI Performance Results (MED Excluded)

Chart 249: Division Reliability – CAIDI Indices

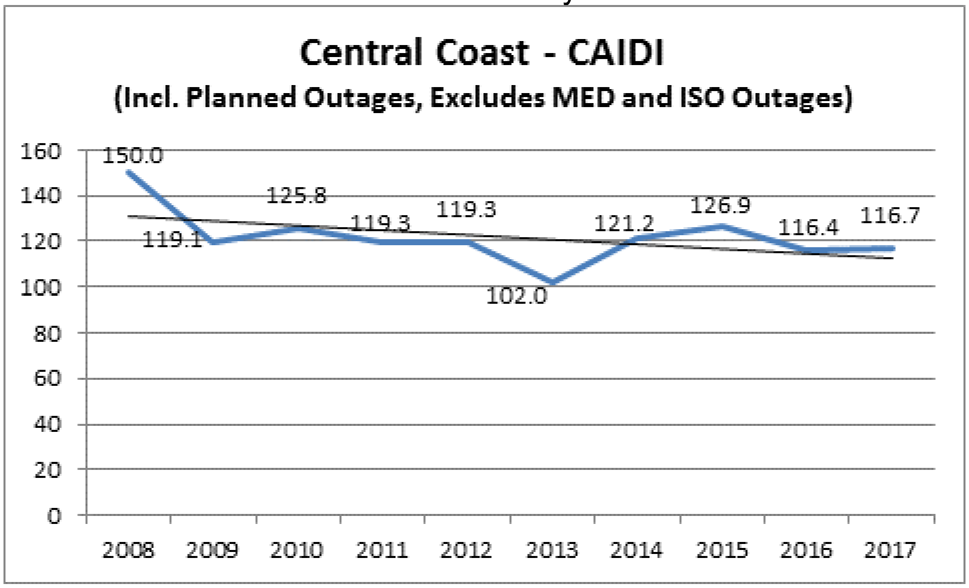


Chart 250: Division Reliability – CAIDI Indices

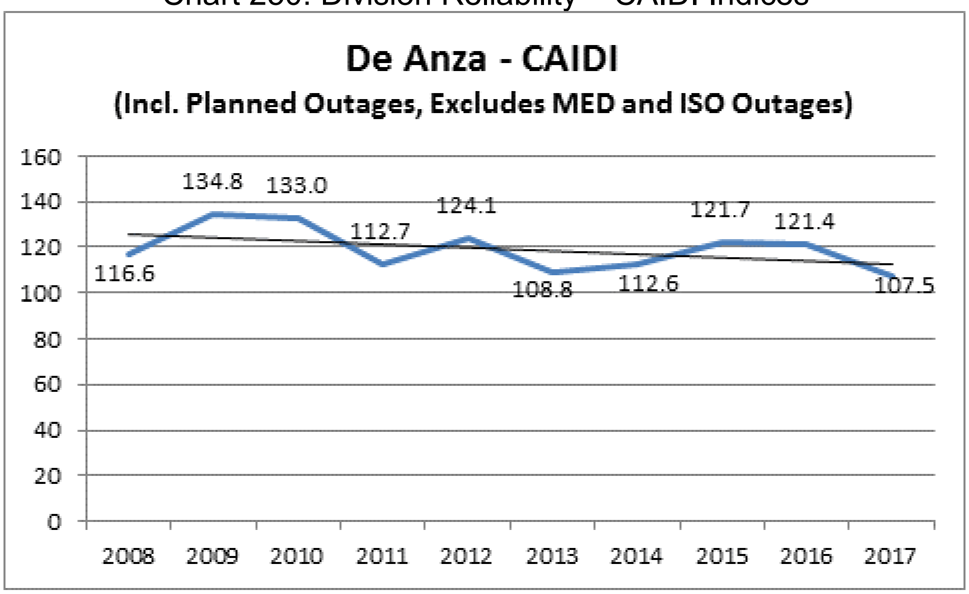


Chart 251: Division Reliability – CAIDI Indices

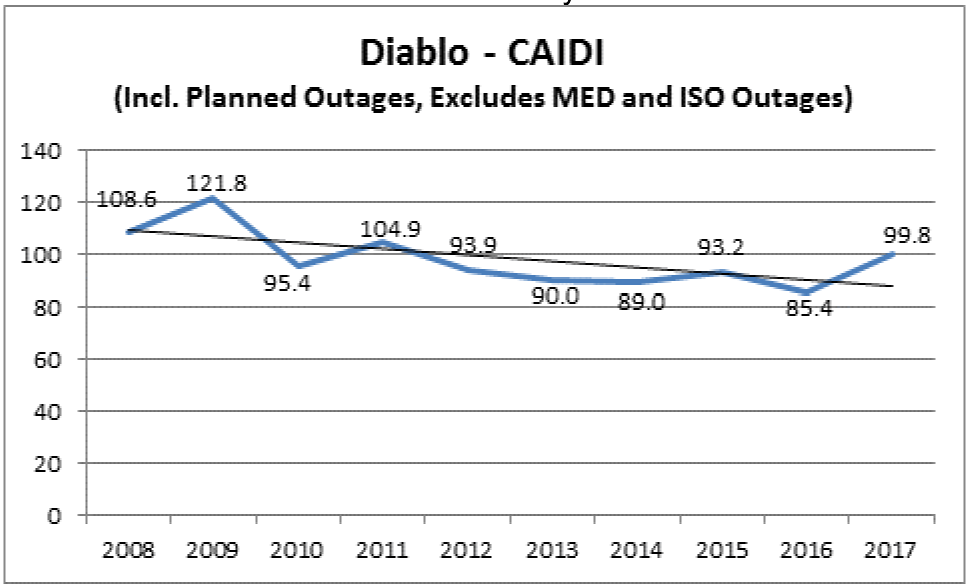


Chart 252: Division Reliability – CAIDI Indices

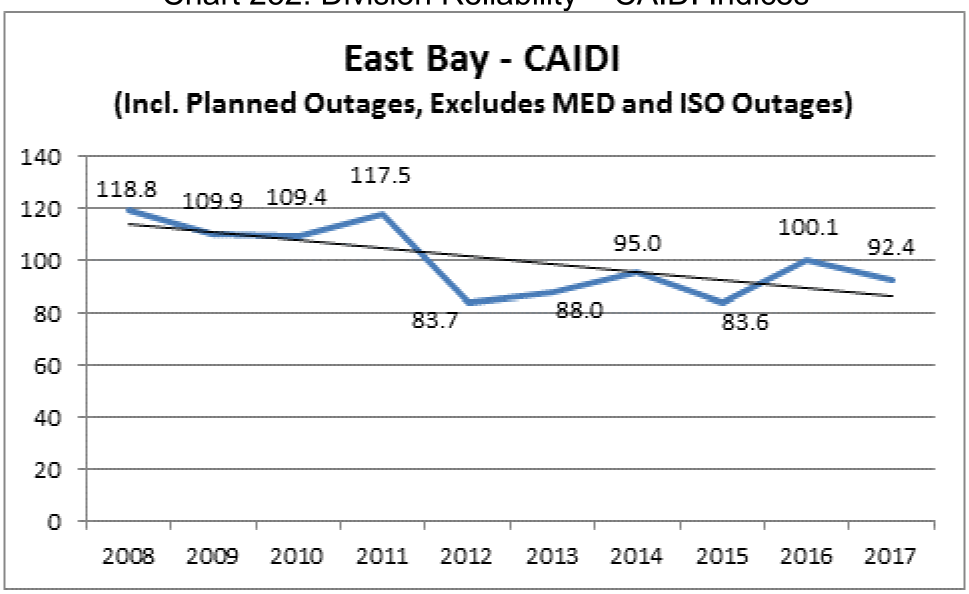


Chart 253: Division Reliability – CAIDI Indices

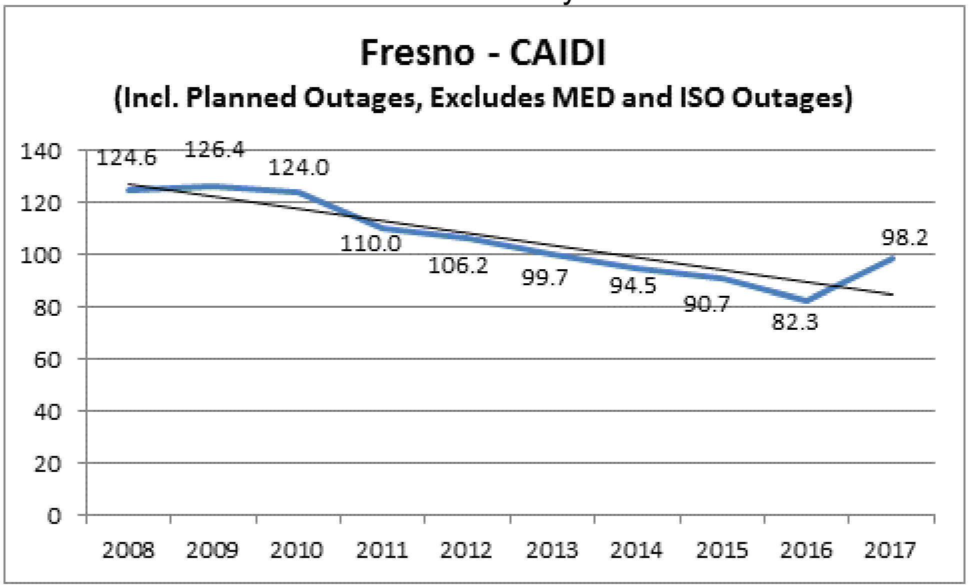


Chart 254: Division Reliability – CAIDI Indices

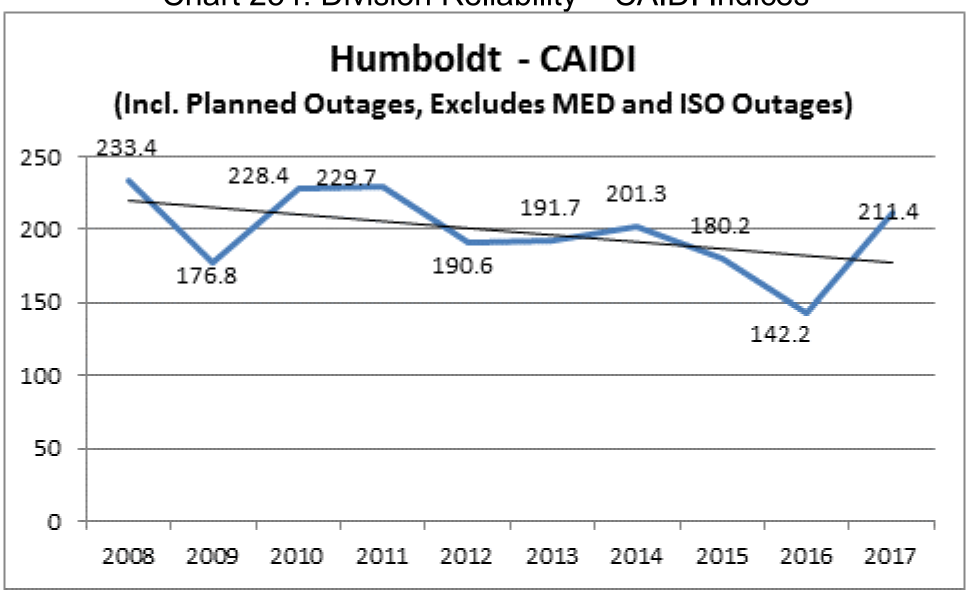


Chart 255: Division Reliability – CAIDI Indices

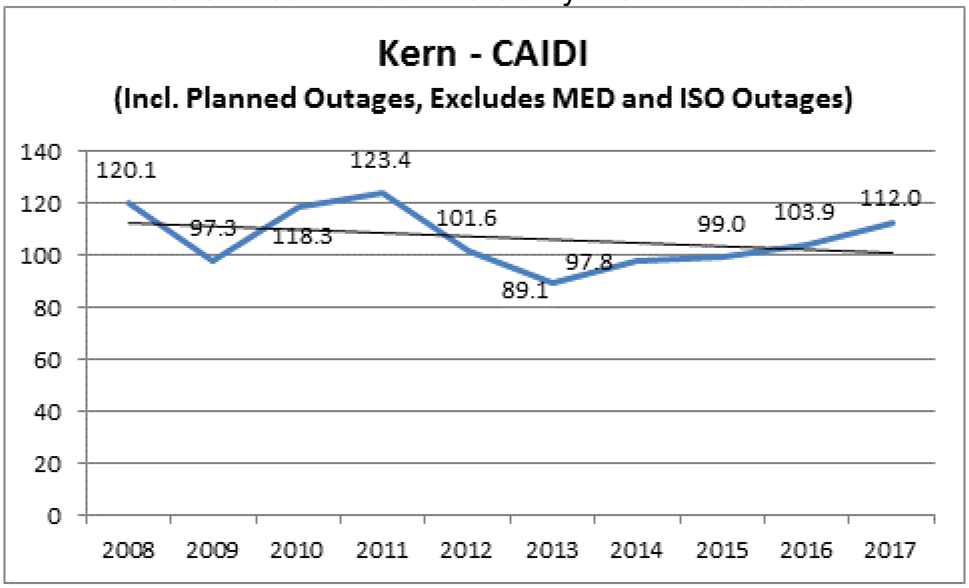


Chart 256: Division Reliability – CAIDI Indices

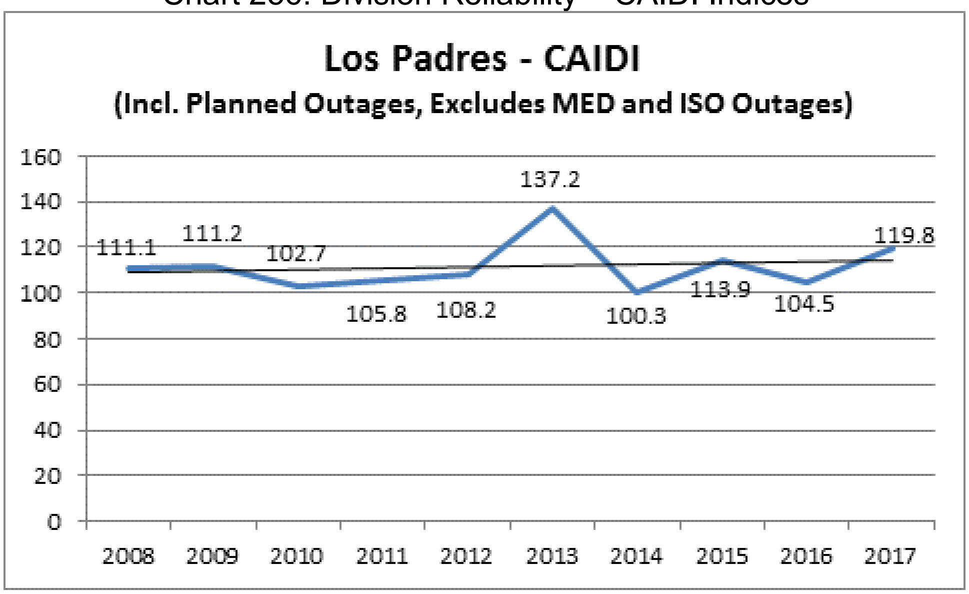


Chart 257: Division Reliability – CAIDI Indices

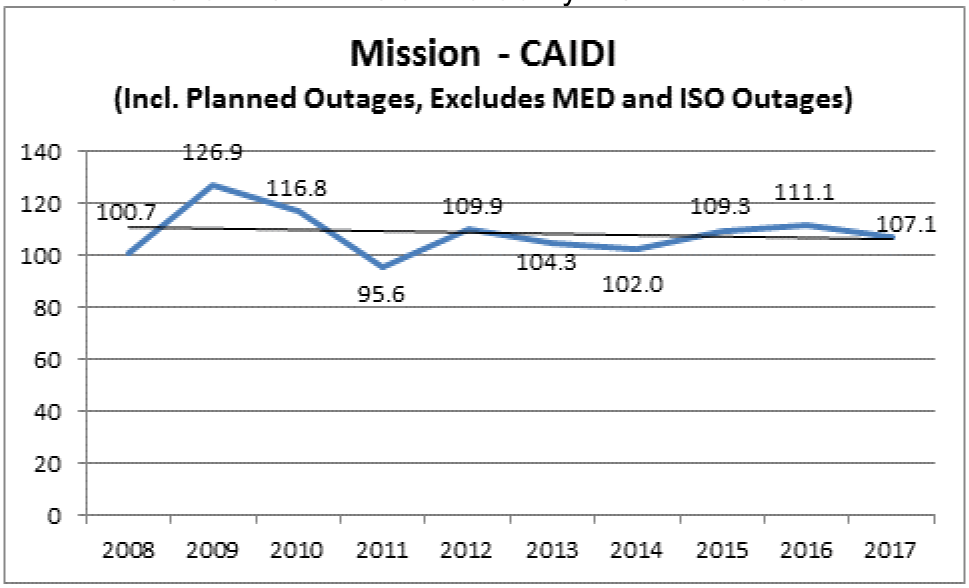


Chart 258: Division Reliability – CAIDI Indices

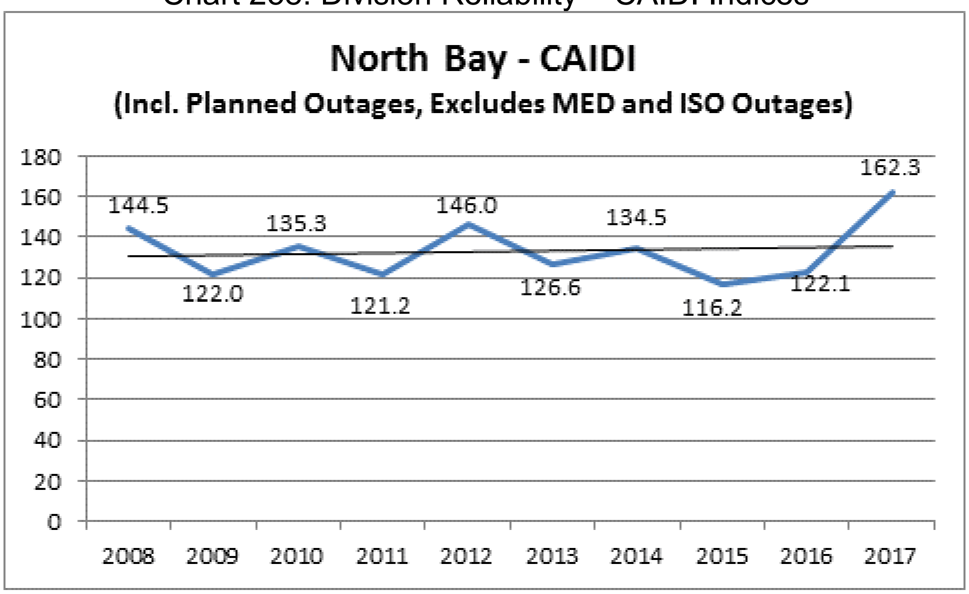


Chart 259: Division Reliability – CAIDI Indices

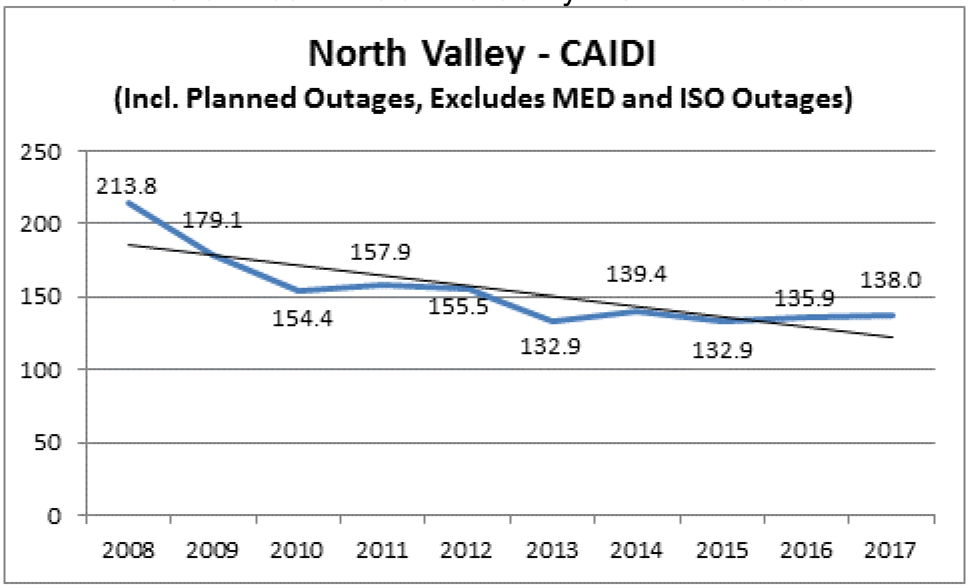


Chart 260: Division Reliability – CAIDI Indices

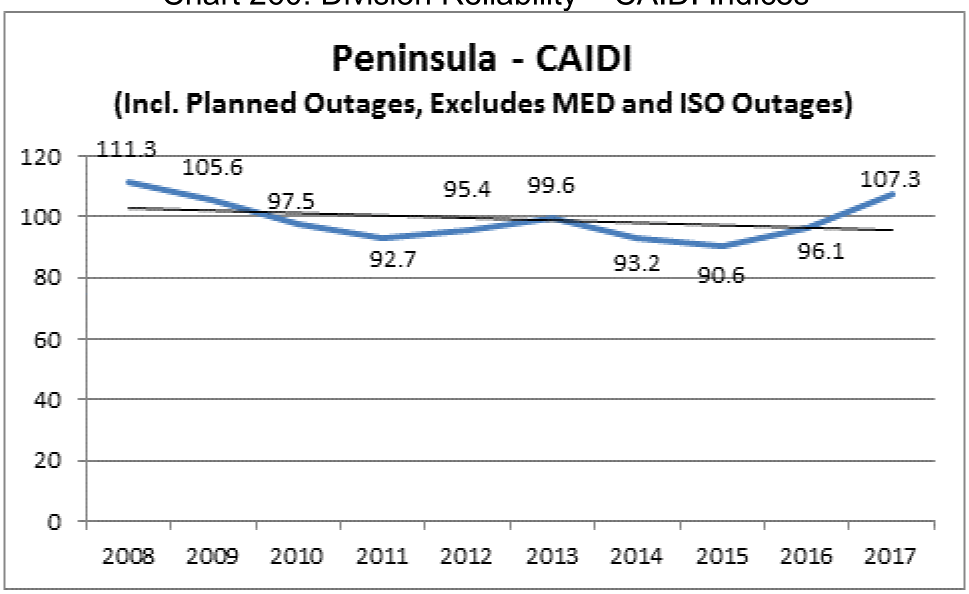


Chart 261: Division Reliability – CAIDI Indices

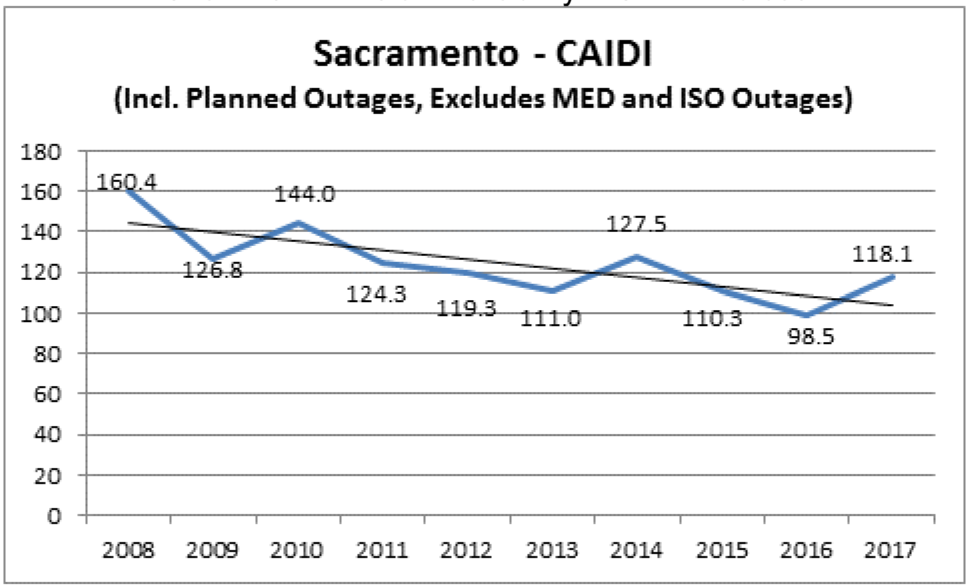


Chart 262: Division Reliability – CAIDI Indices

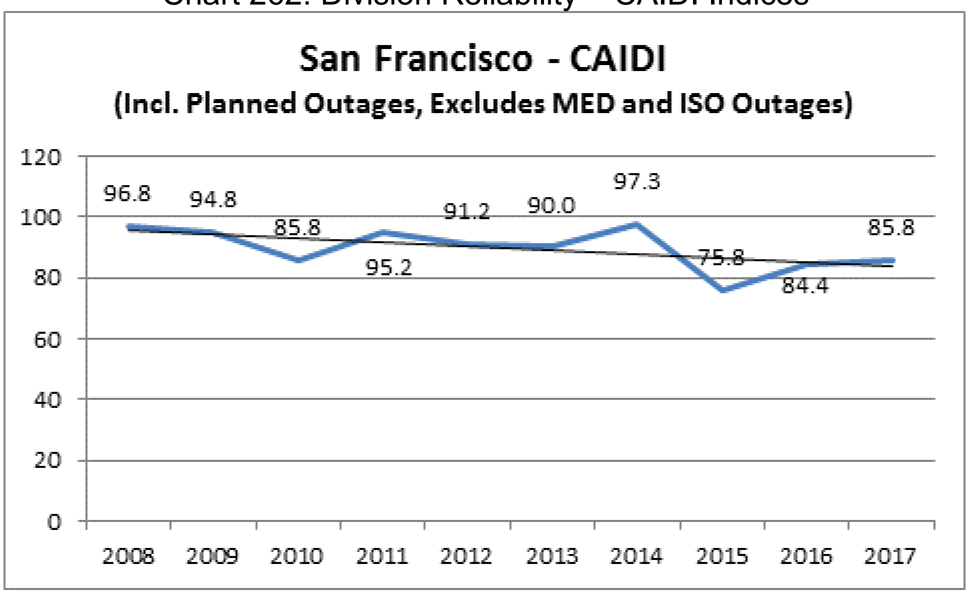


Chart 263: Division Reliability – CAIDI Indices

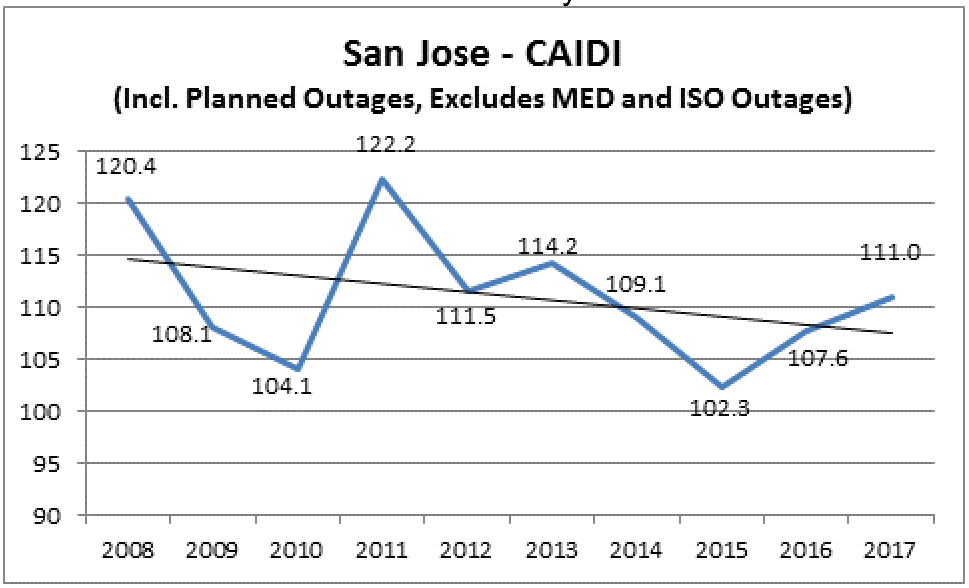


Chart 264: Division Reliability – CAIDI Indices

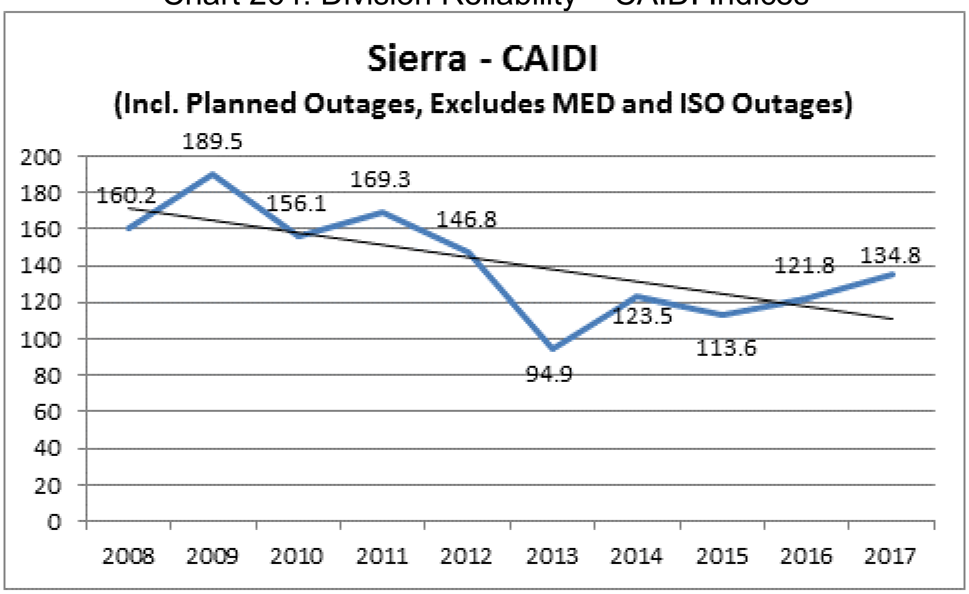


Chart 265: Division Reliability – CAIDI Indices

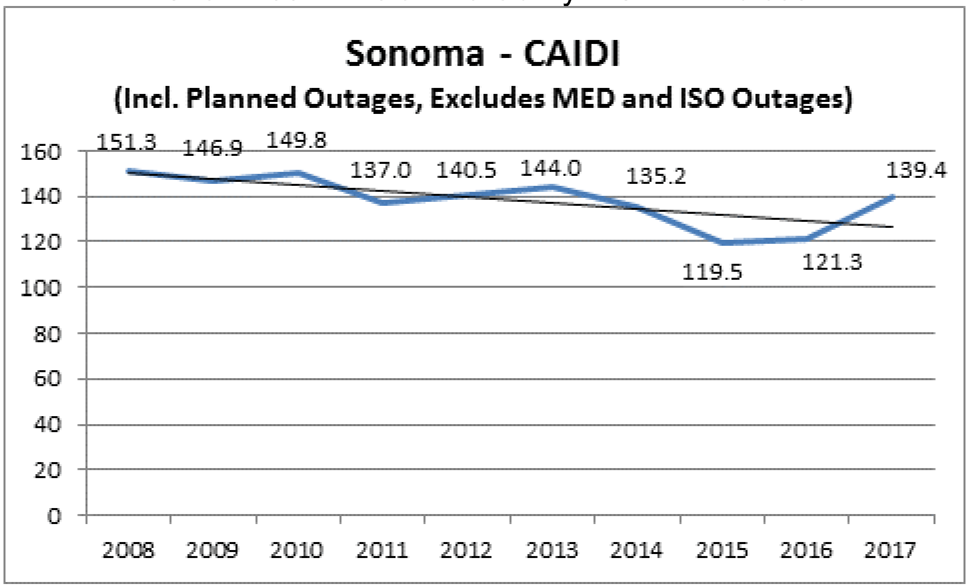


Chart 266: Division Reliability – CAIDI Indices

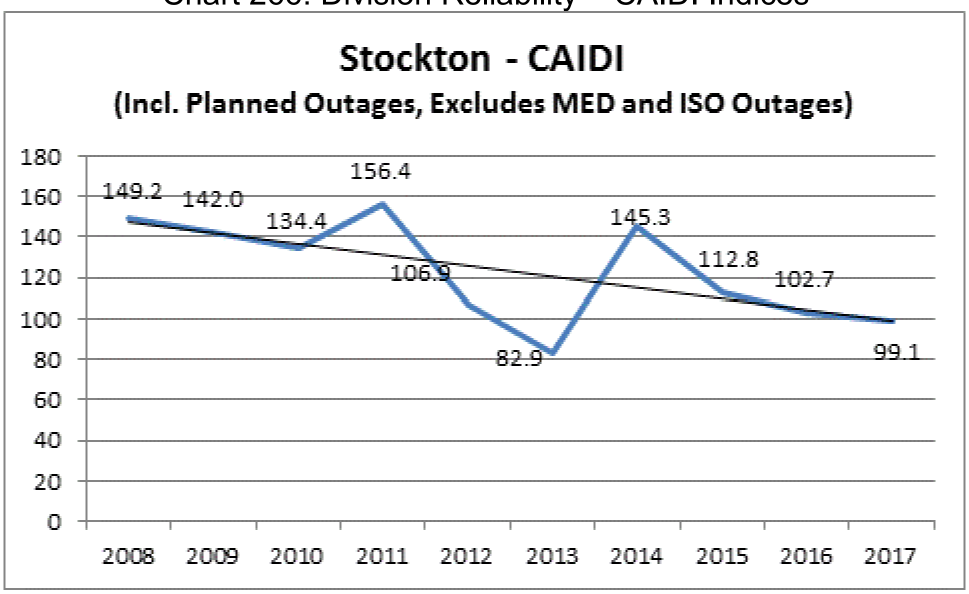


Chart 267: Division Reliability – CAIDI Indices

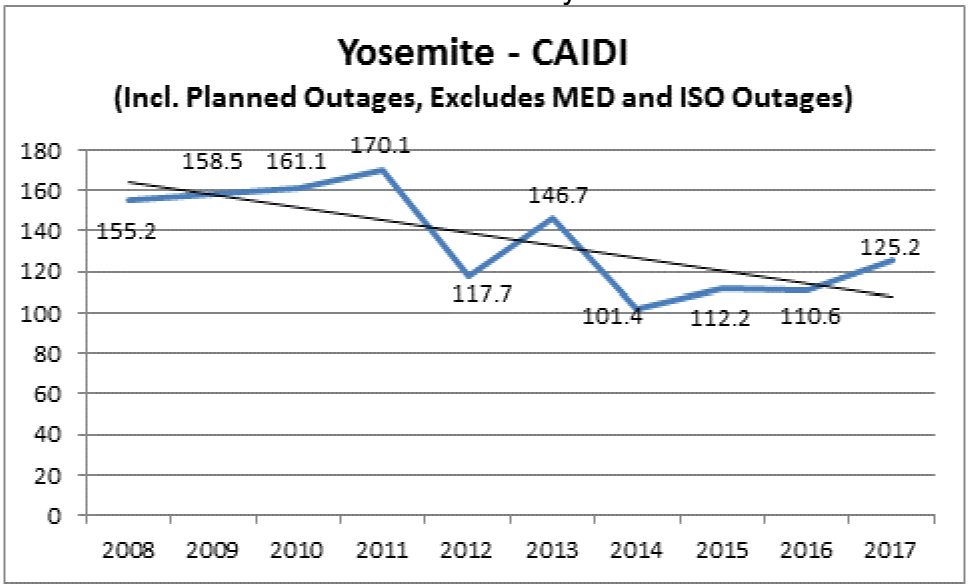
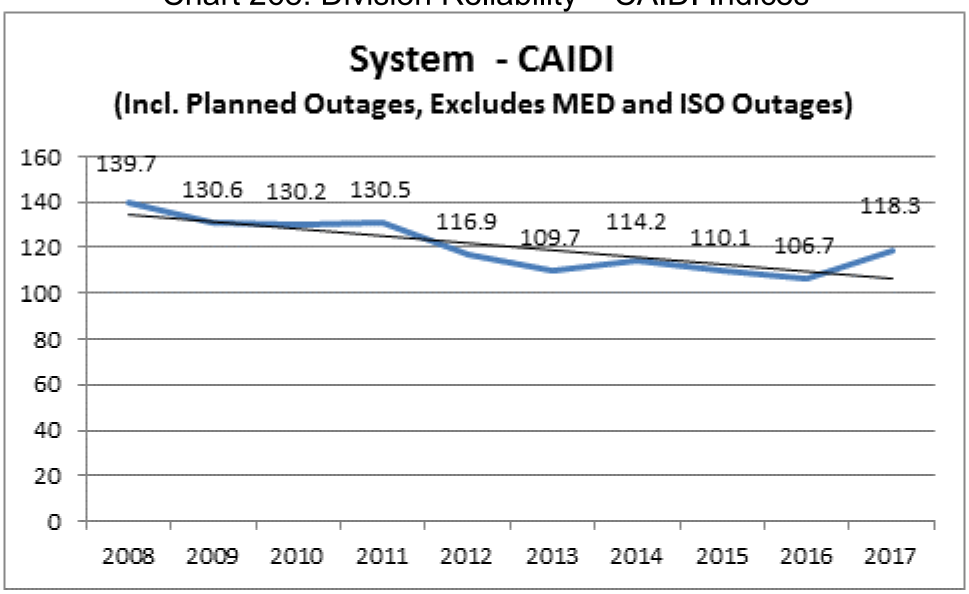


Chart 268: Division Reliability – CAIDI Indices



ii. Charts for System and Division Reliability Indices based on IEEE 1366 for the past 10 years including planned outages and including MED

1. SAIDI Performance Results (MED Included)

Chart 269: Division Reliability – AIDI Indices

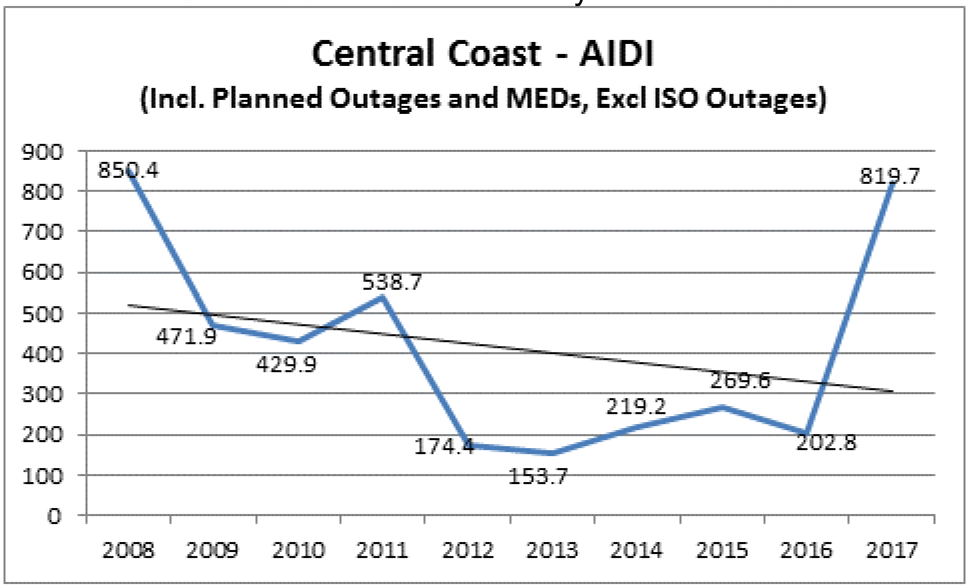


Chart 270: Division Reliability – AIDI Indices

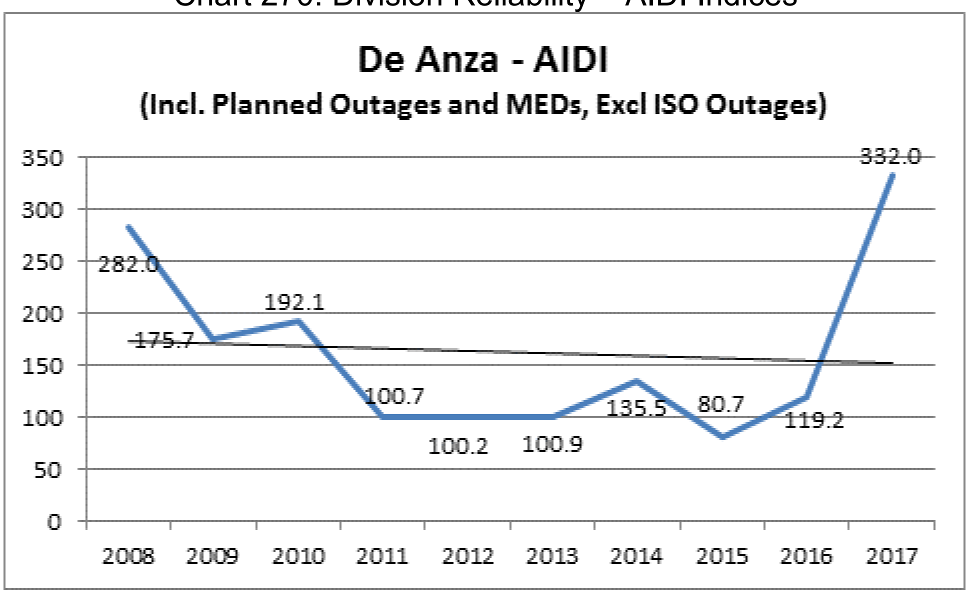


Chart 271: Division Reliability – AIDI Indices

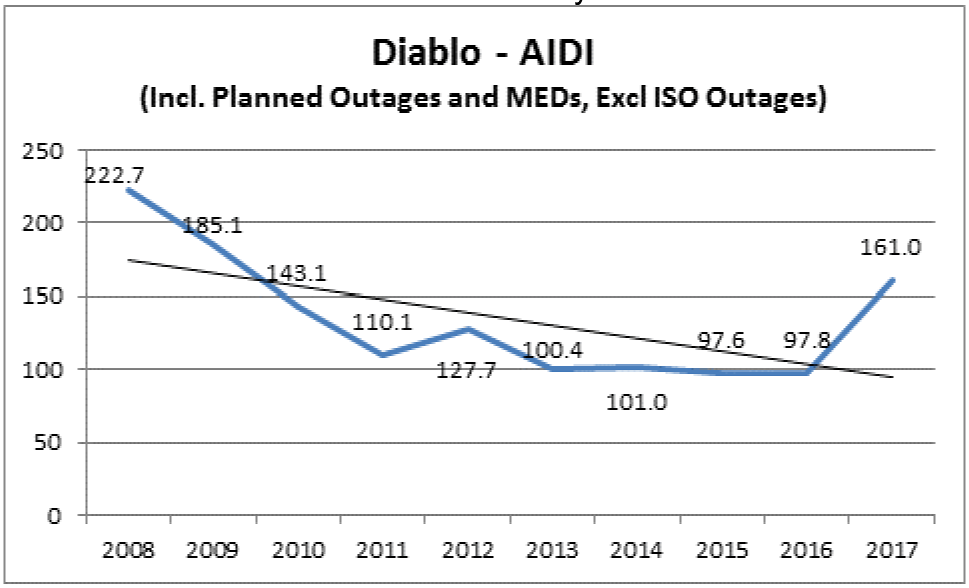


Chart 272: Division Reliability – AIDI Indices

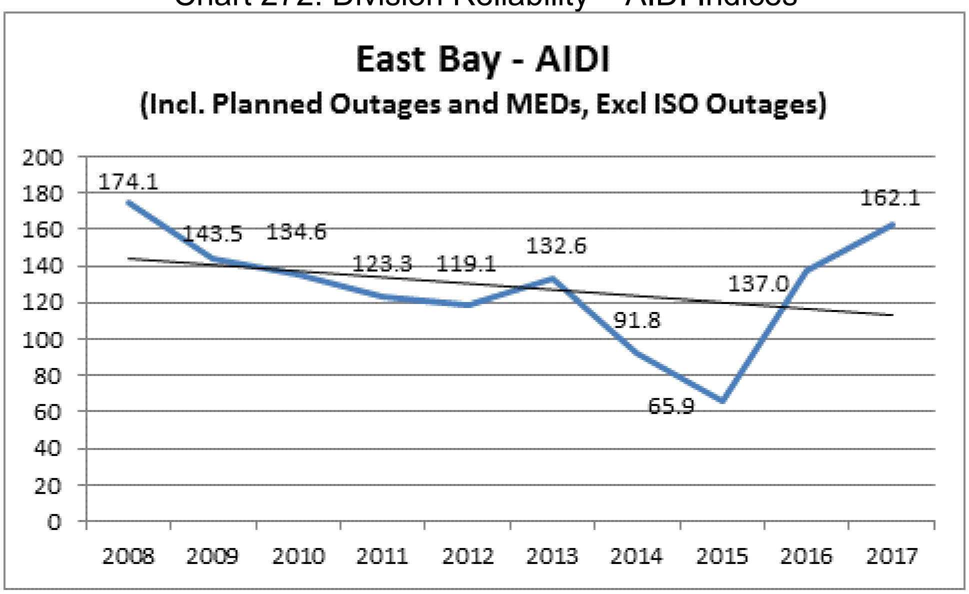


Chart 273: Division Reliability – AIDI Indices

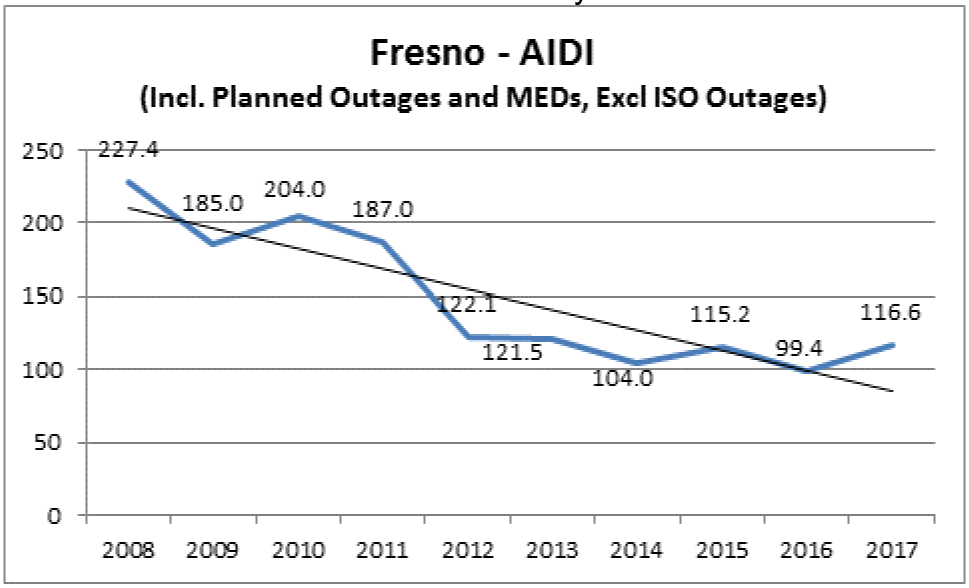


Chart 274: Division Reliability – AIDI Indices

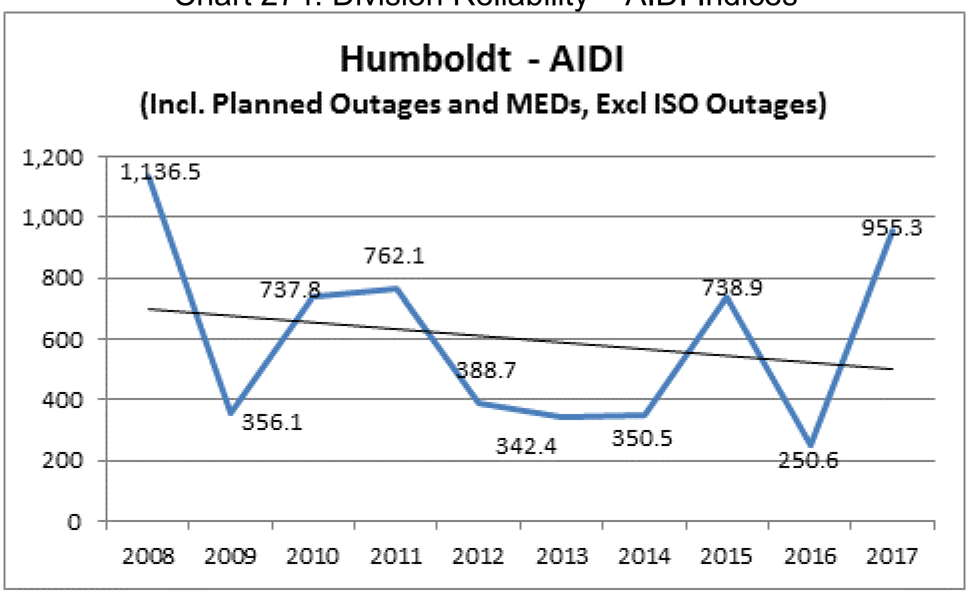


Chart 275: Division Reliability – AIDI Indices

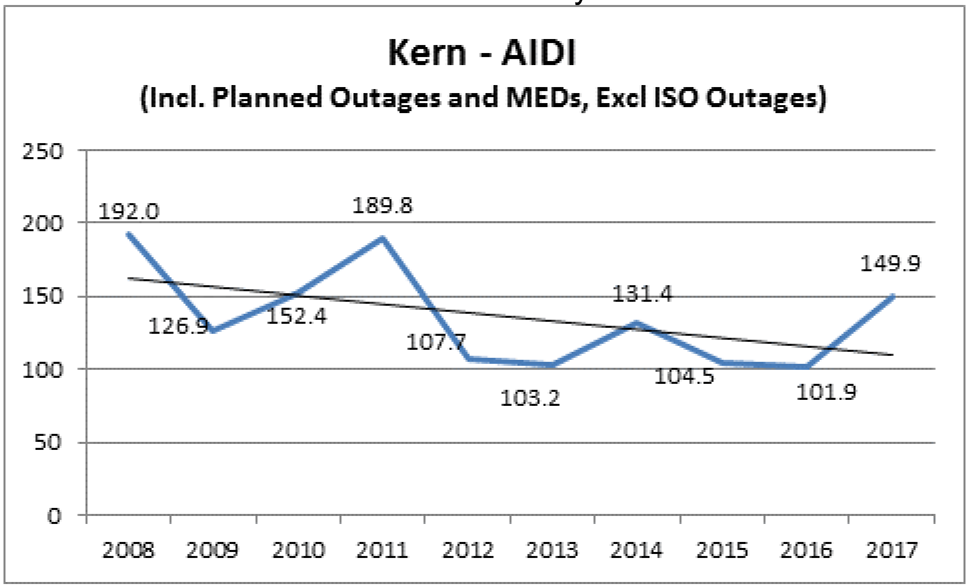


Chart 276: Division Reliability – AIDI Indices

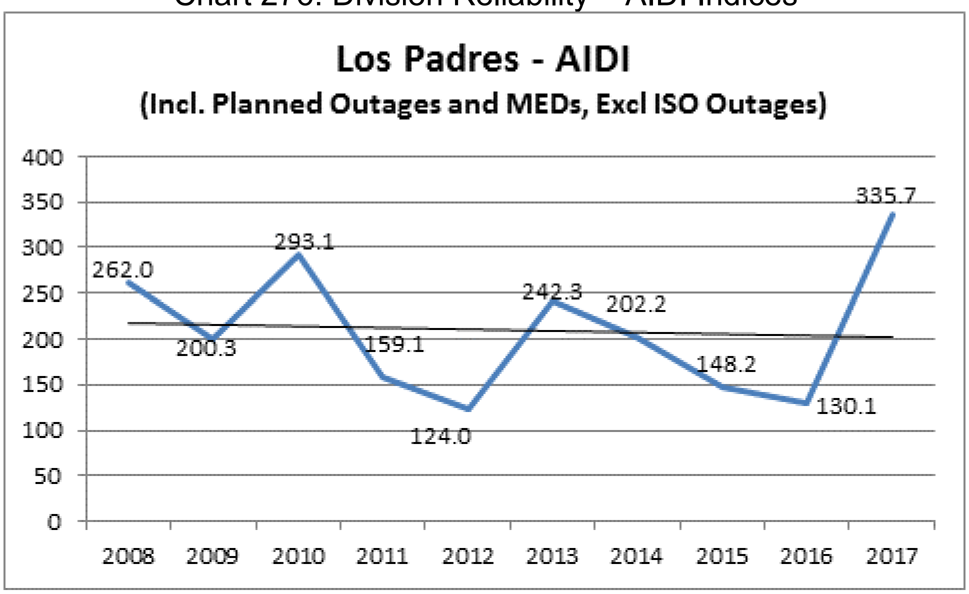


Chart 277: Division Reliability – AIDI Indices

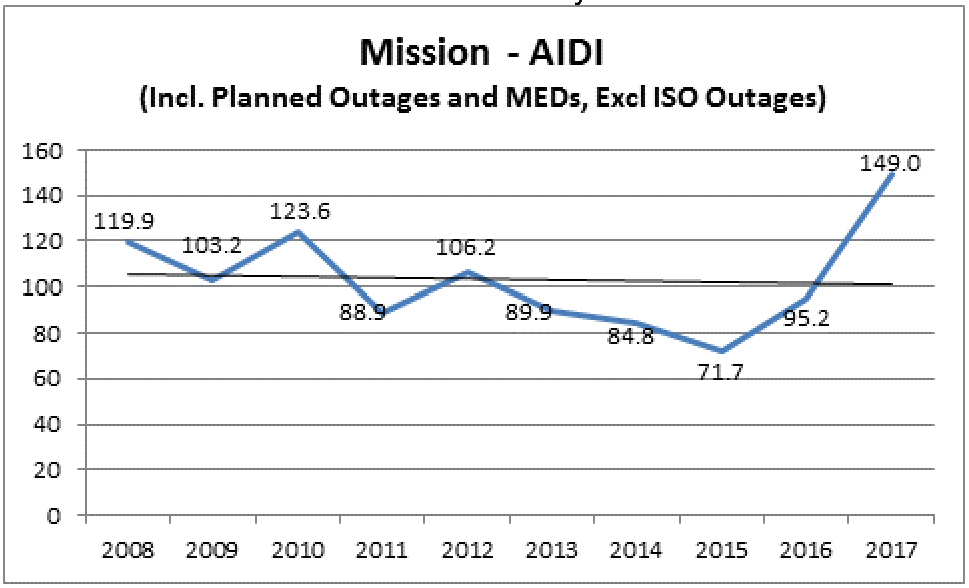


Chart 278: Division Reliability – AIDI Indices

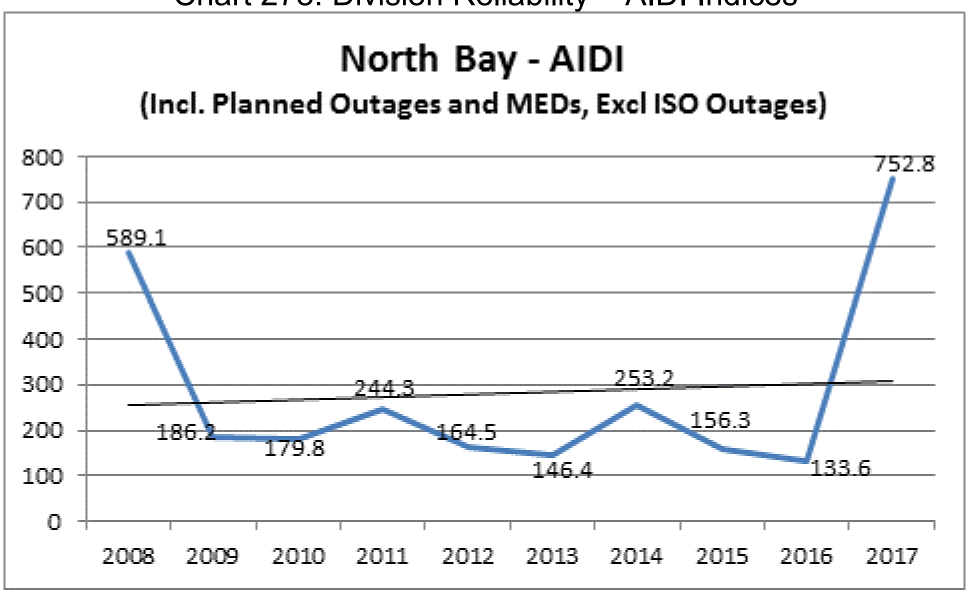


Chart 279: Division Reliability – AIDI Indices

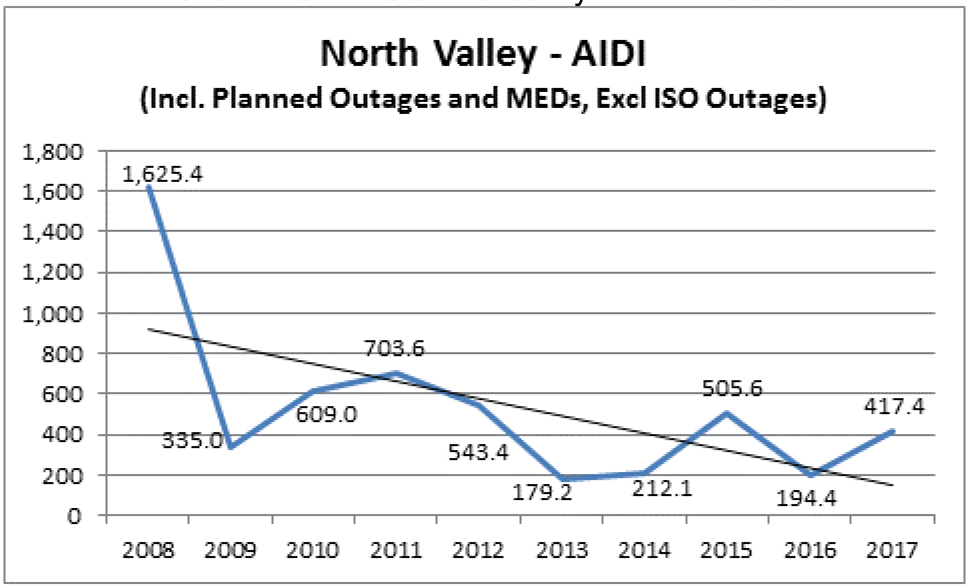


Chart 280: Division Reliability – AIDI Indices

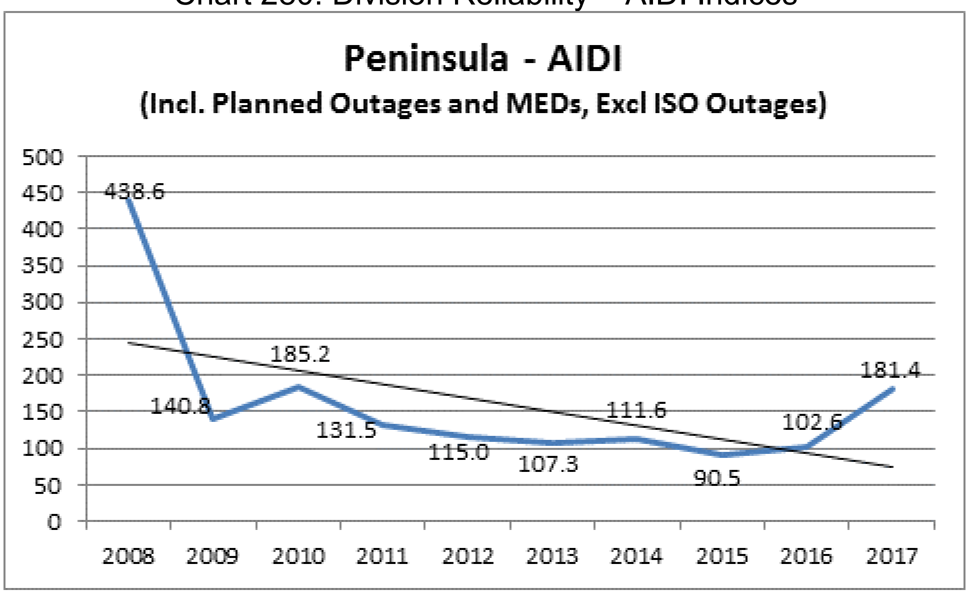


Chart 281: Division Reliability – AIDI Indices

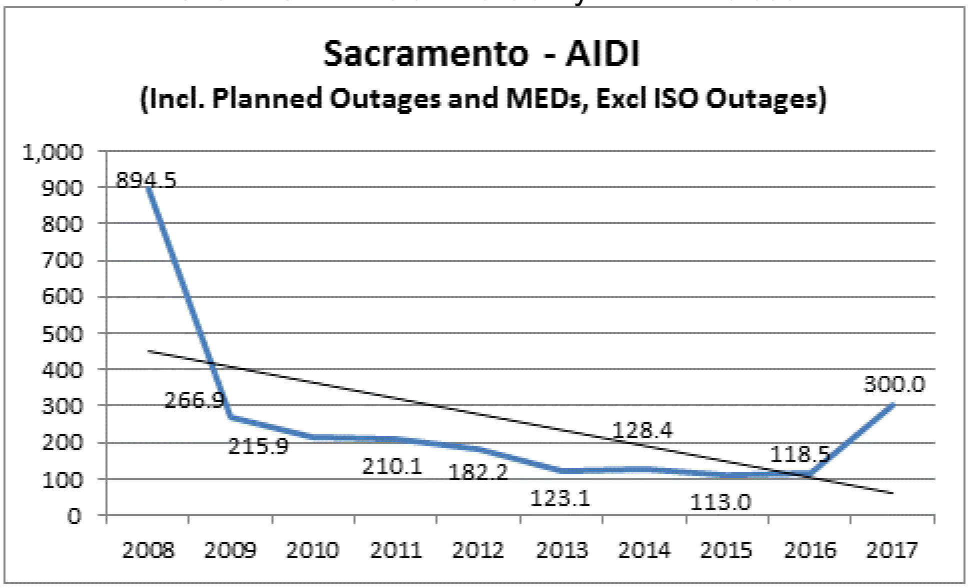


Chart 282: Division Reliability – AIDI Indices

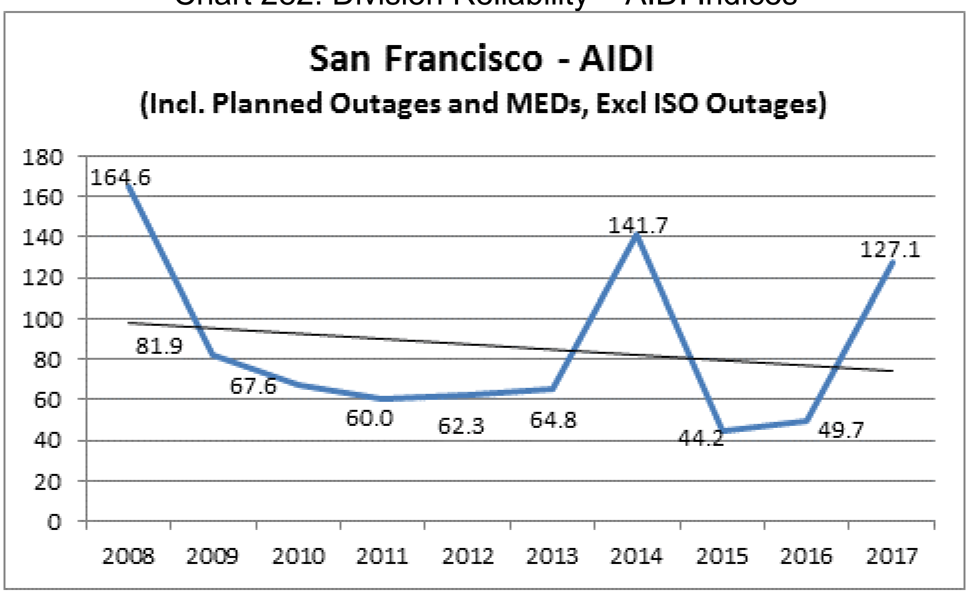


Chart 283: Division Reliability – AIDI Indices

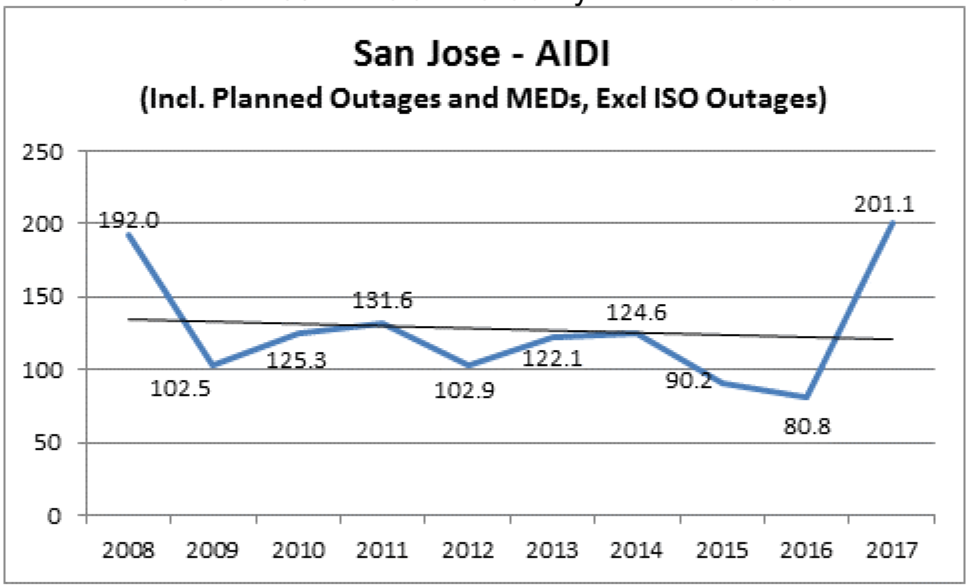


Chart 284: Division Reliability – AIDI Indices

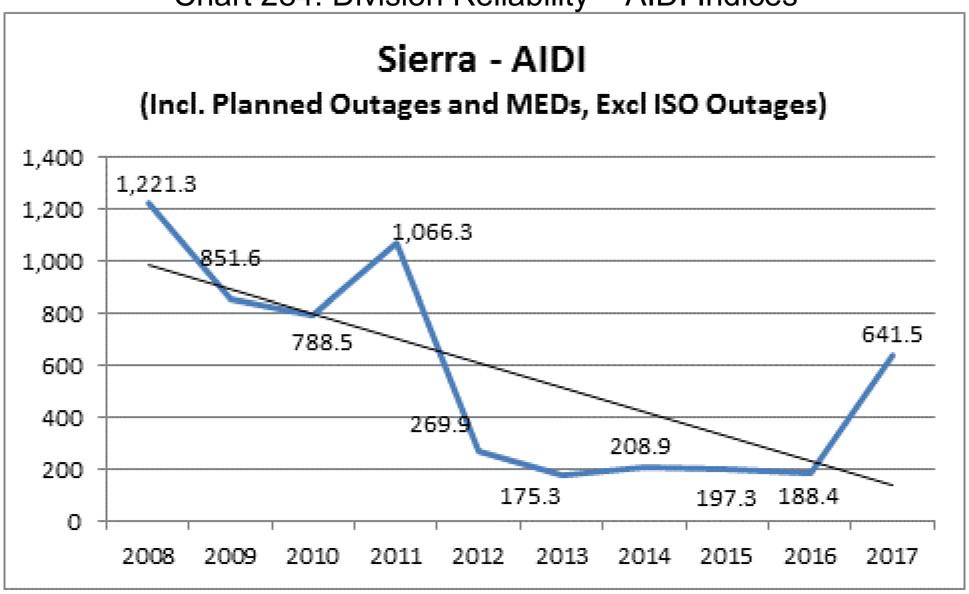


Chart 285: Division Reliability – AIDI Indices

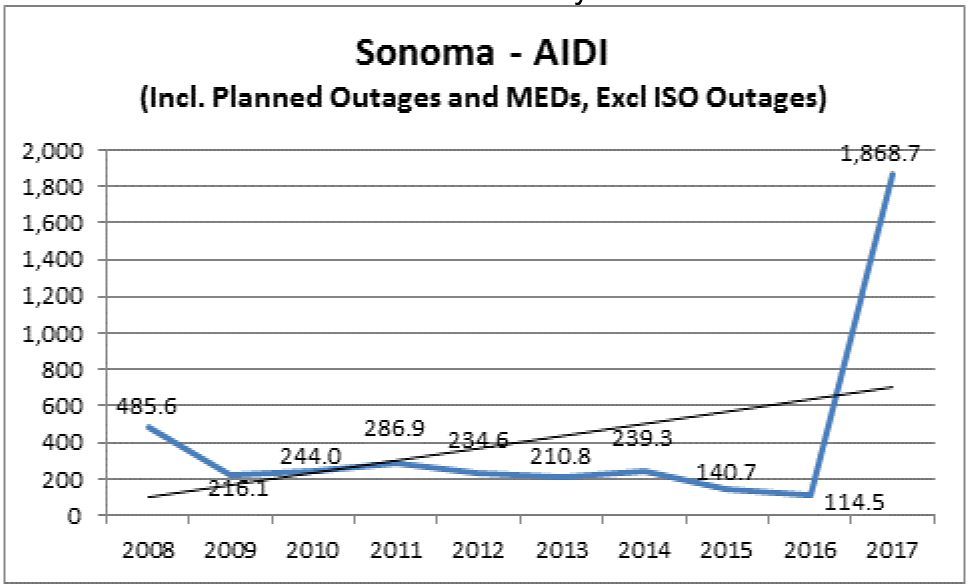


Chart 286: Division Reliability – AIDI Indices

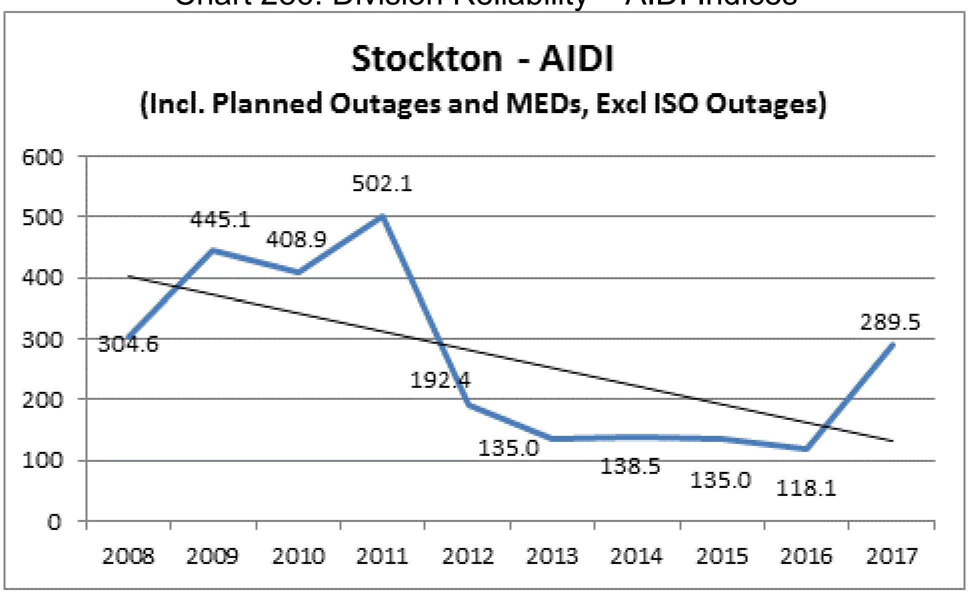


Chart 287: Division Reliability – AIDI Indices

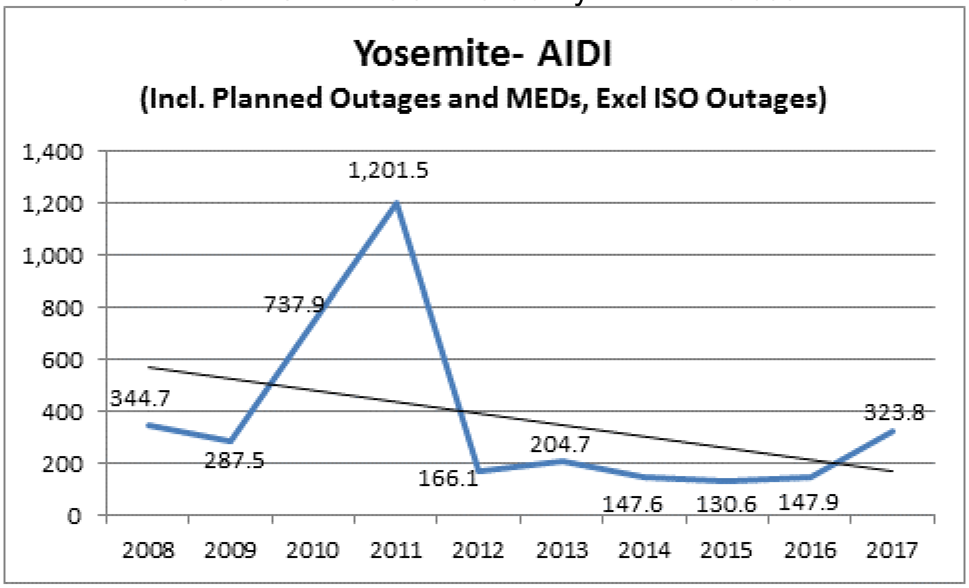
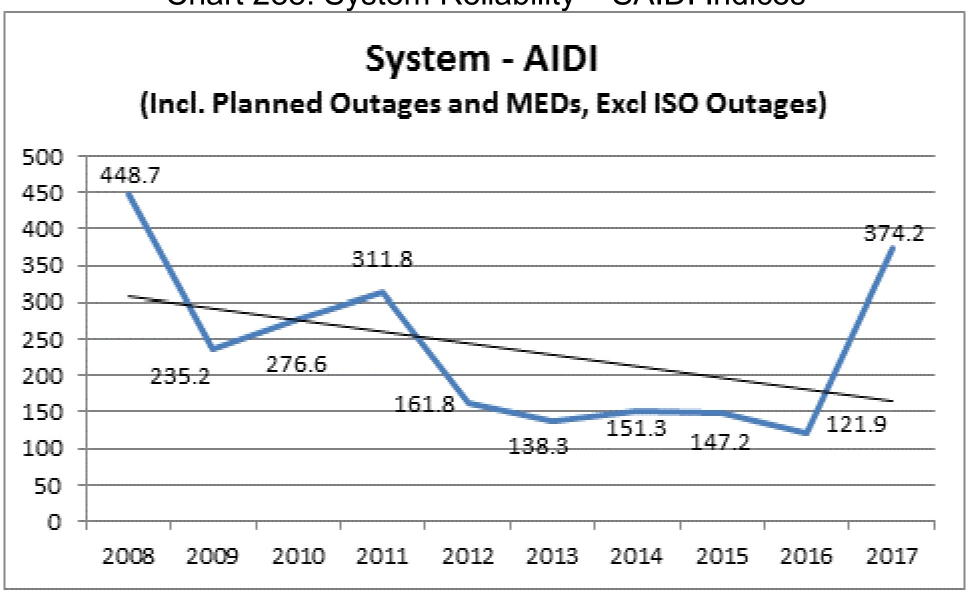


Chart 288: System Reliability – SAIDI Indices



2. SAIFI Performance Results (MED Included)

Chart 289: Division Reliability – AIFI Indices

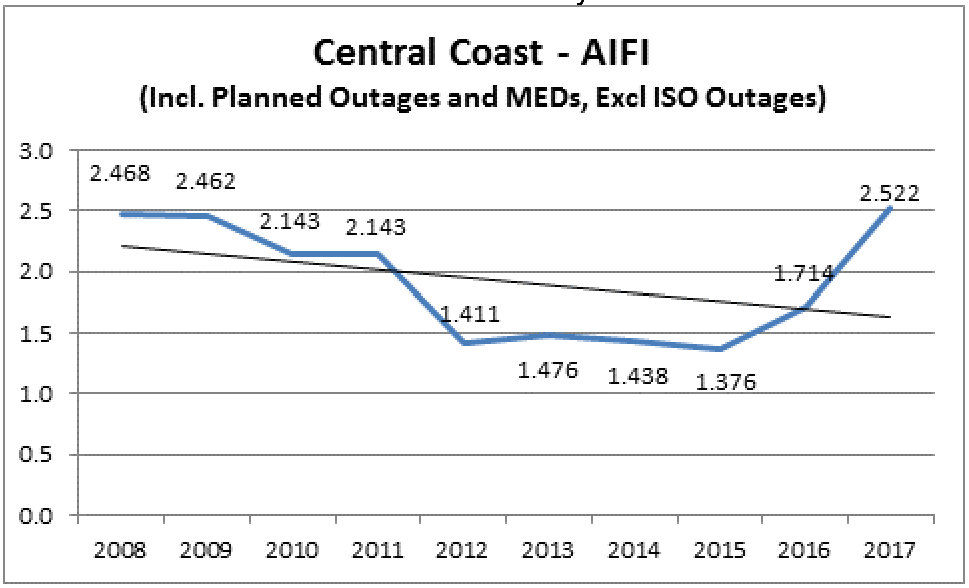


Chart 290: Division Reliability – AIFI Indices

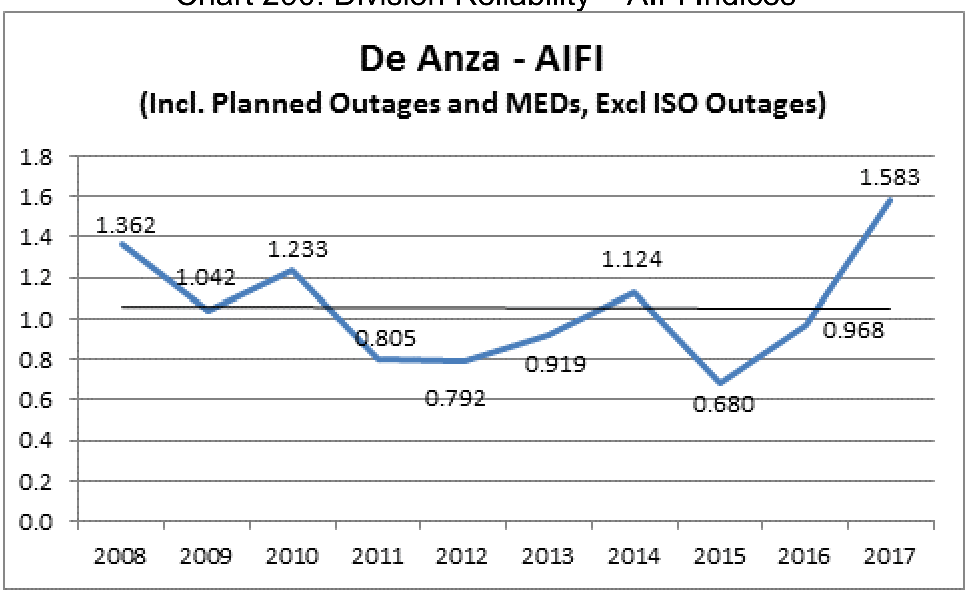


Chart 291: Division Reliability – AIFI Indices

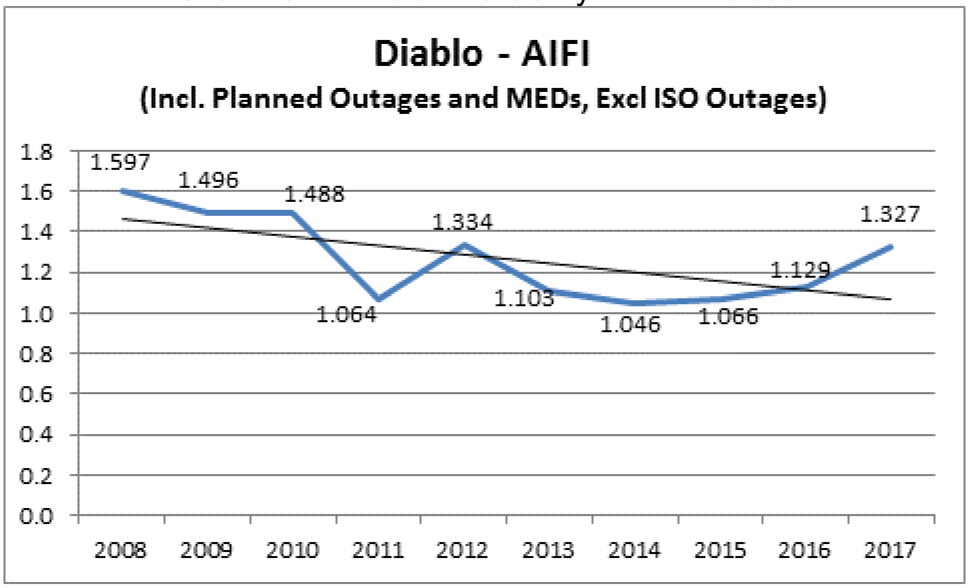


Chart 292: Division Reliability – AIFI Indices

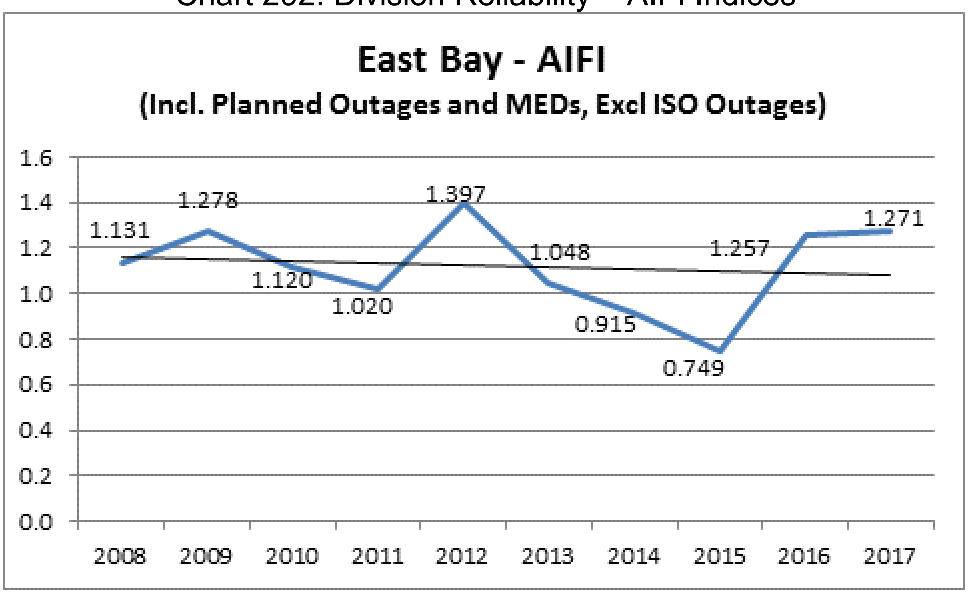


Chart 293: Division Reliability – AIFI Indices

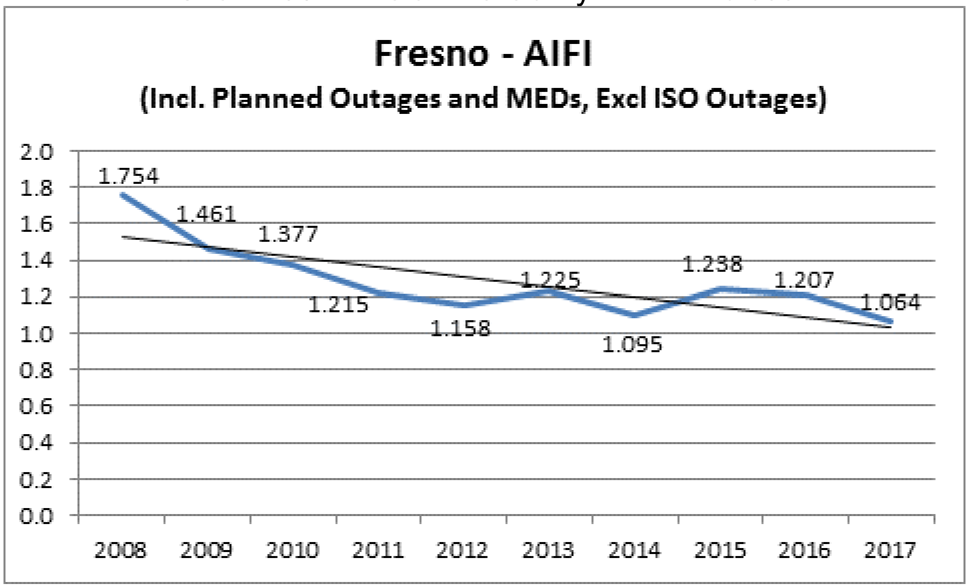


Chart 294: Division Reliability – AIFI Indices

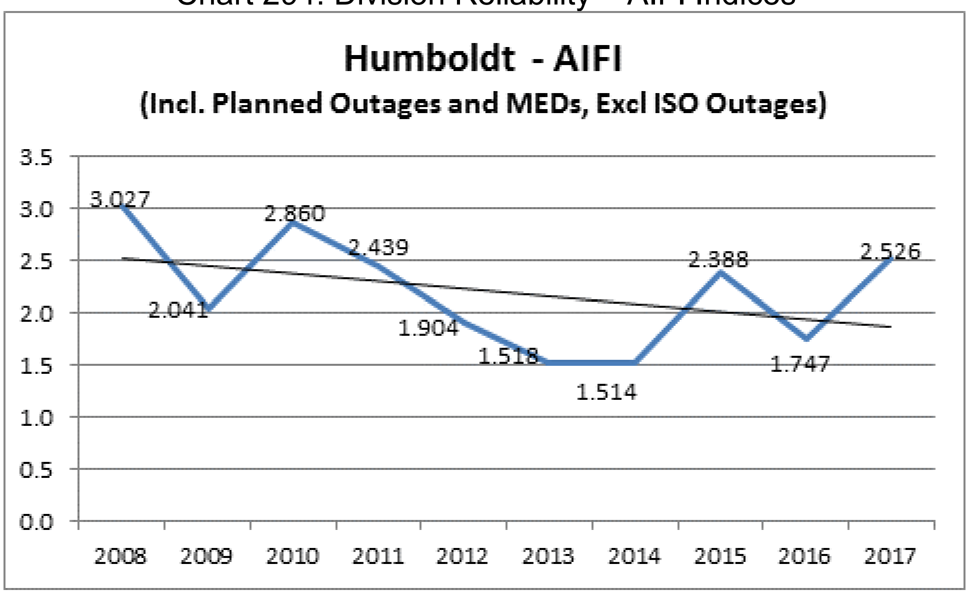


Chart 295: Division Reliability – AIFI Indices

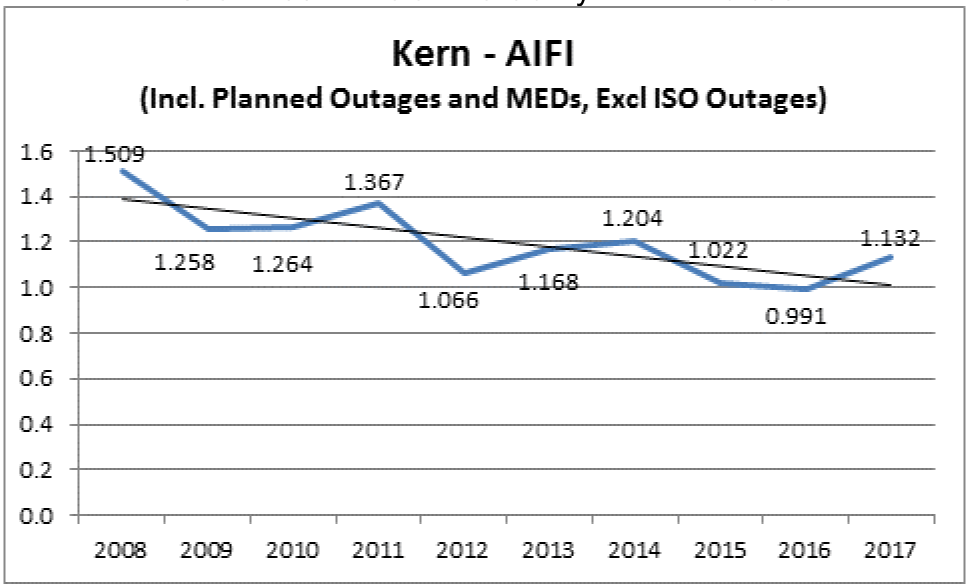


Chart 296: Division Reliability – AIFI Indices

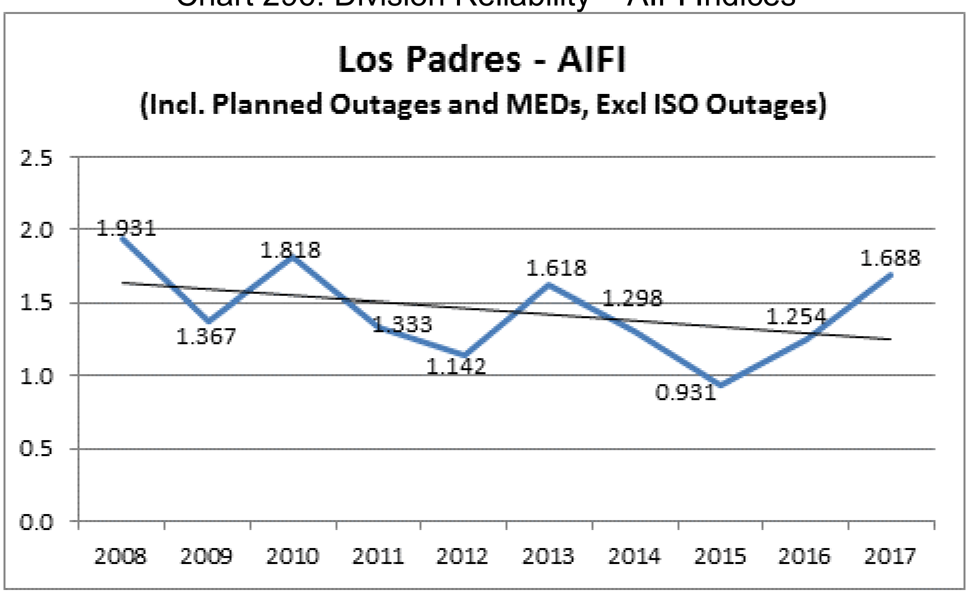


Chart 297: Division Reliability – AIFI Indices

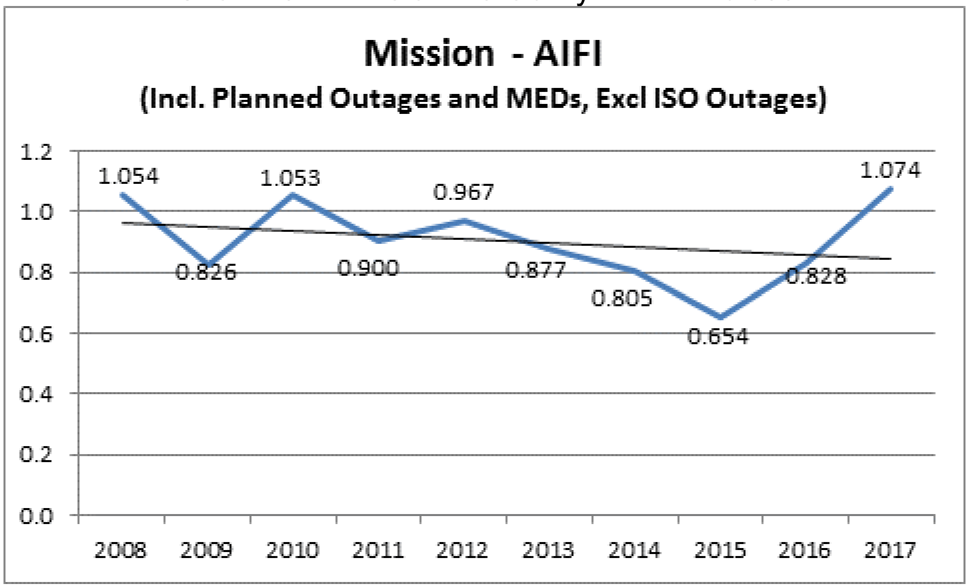


Chart 298: Division Reliability – AIFI Indices

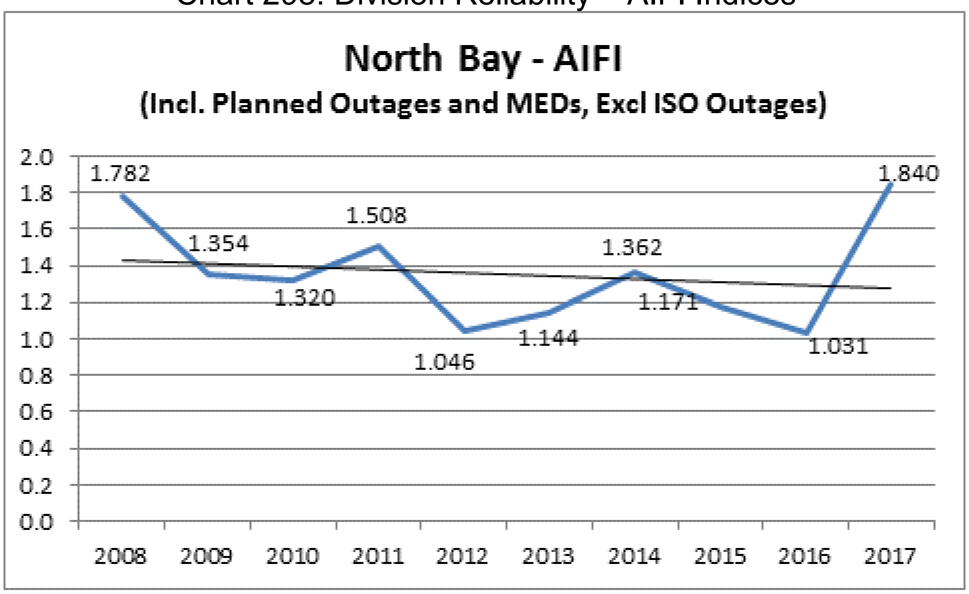


Chart 299: Division Reliability – AIFI Indices

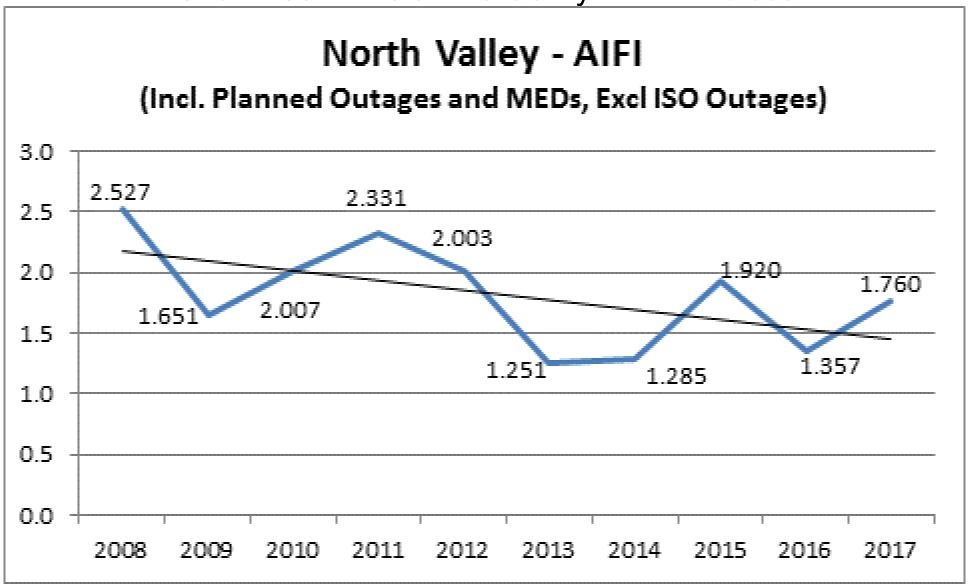


Chart 300: Division Reliability – AIFI Indices

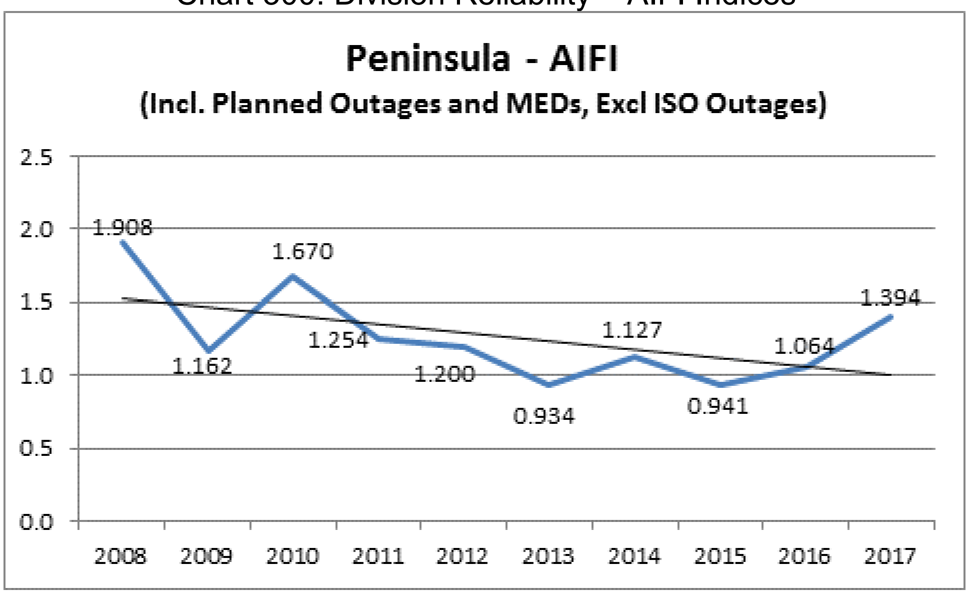


Chart 301: Division Reliability – AIFI Indices

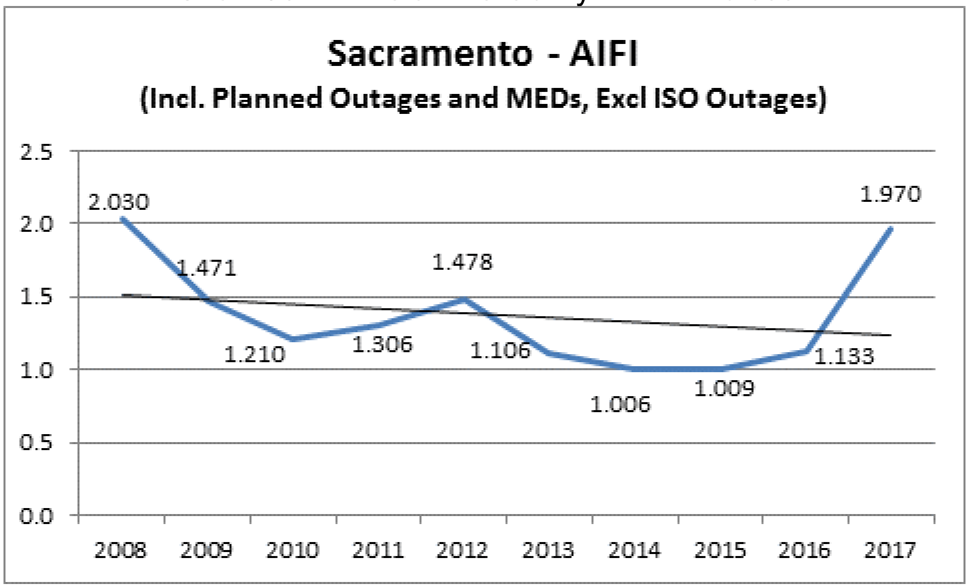


Chart 302: Division Reliability – AIFI Indices

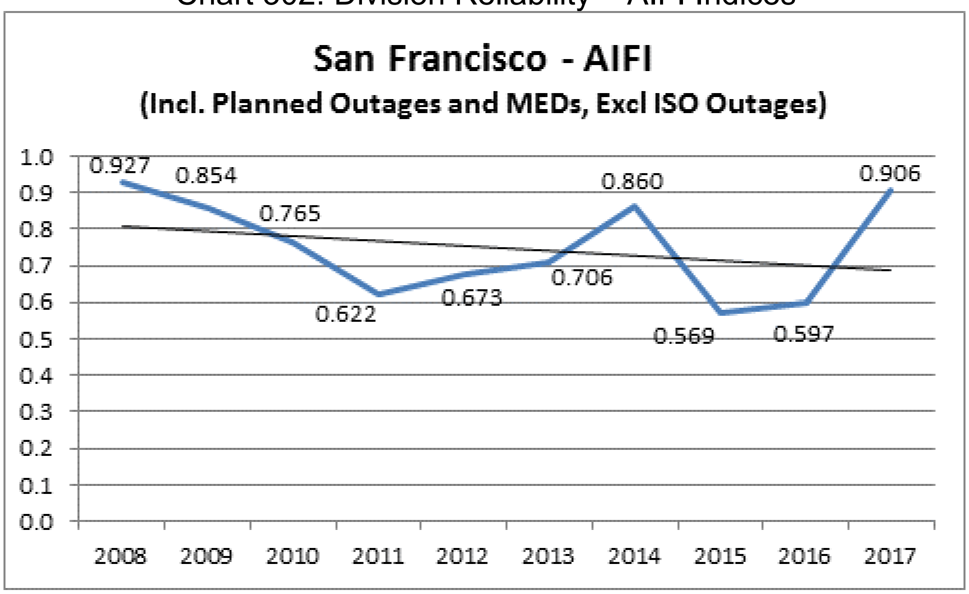


Chart 303: Division Reliability – AIFI Indices

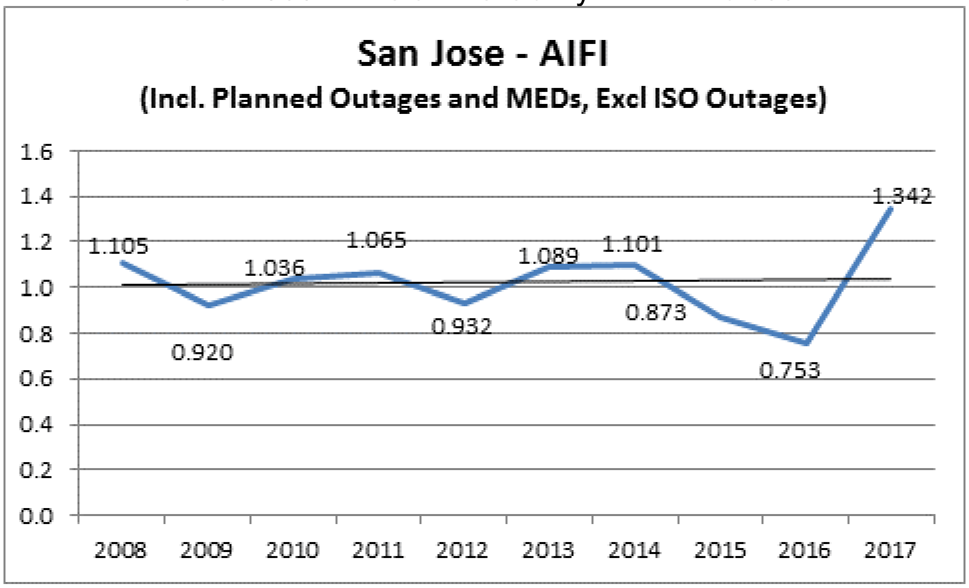


Chart 304: Division Reliability – AIFI Indices

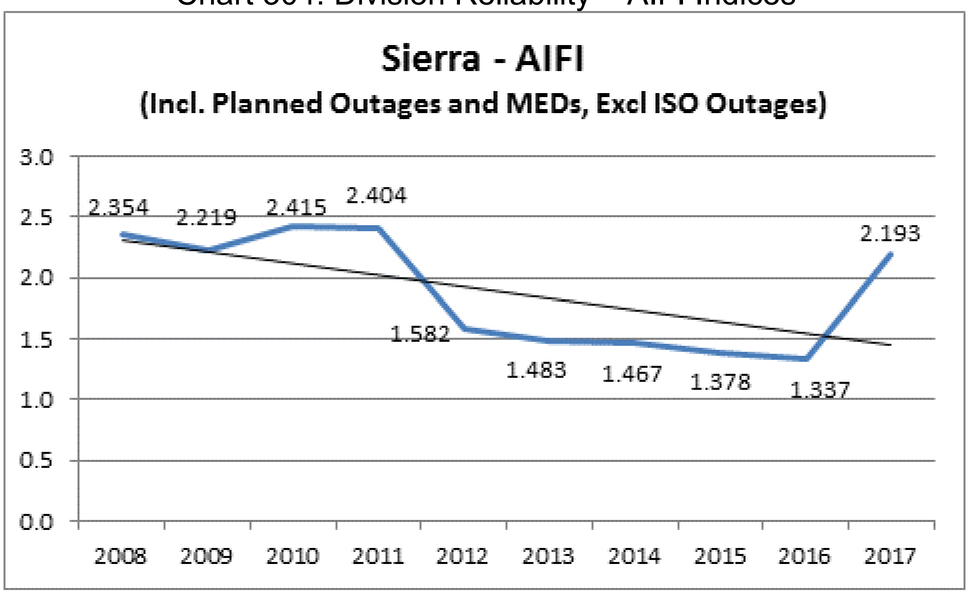


Chart 305: Division Reliability – AIFI Indices

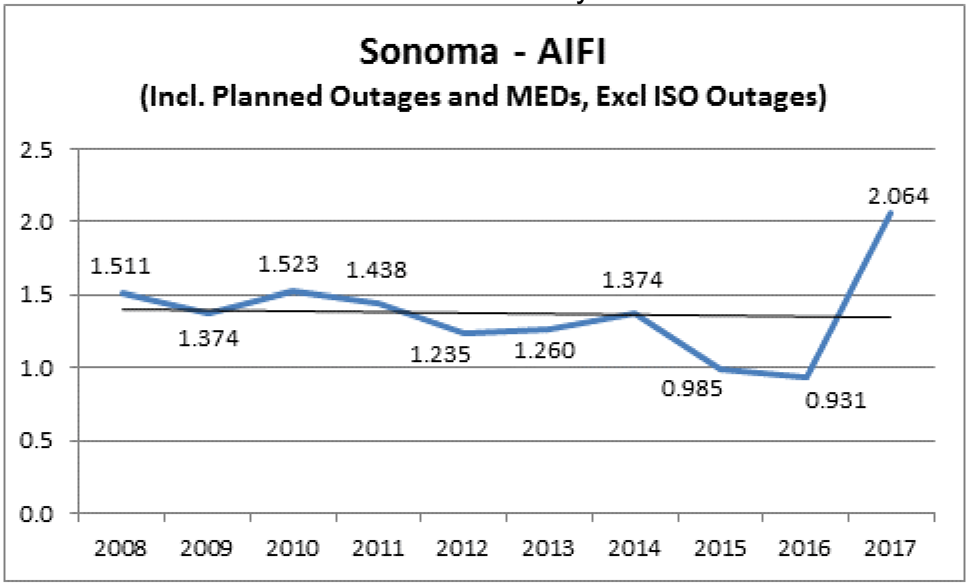


Chart 306: Division Reliability – AIFI Indices

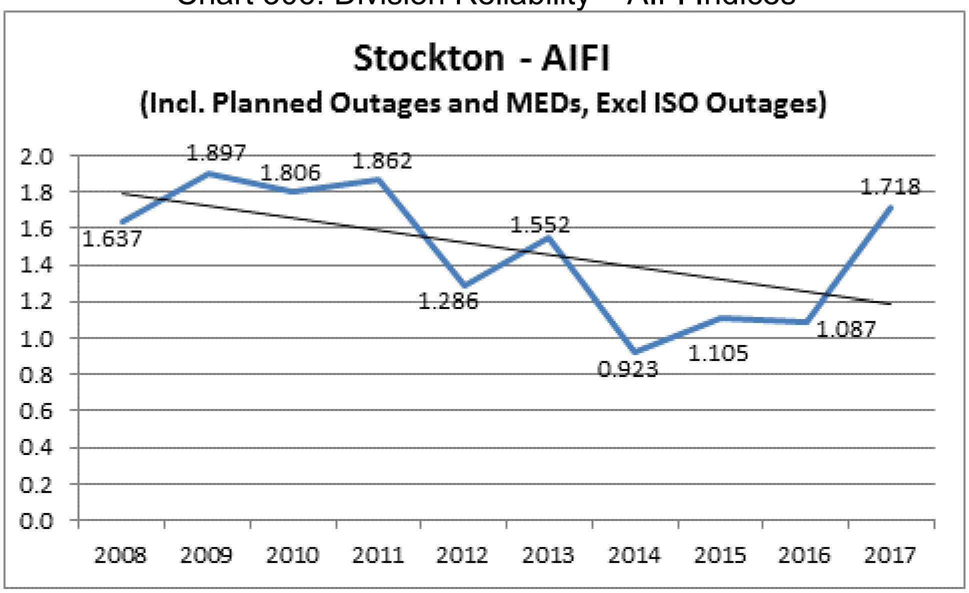


Chart 307: Division Reliability – AIFI Indices

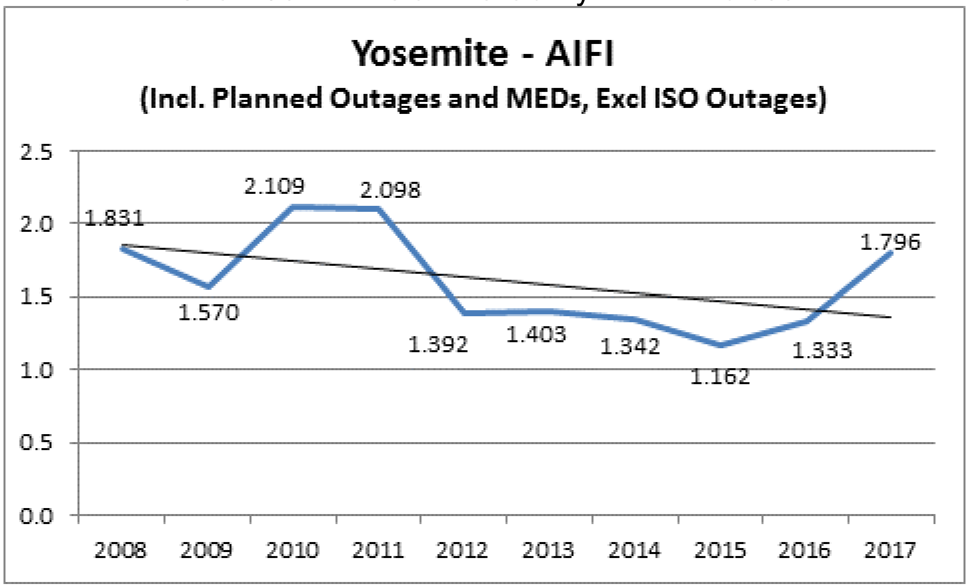
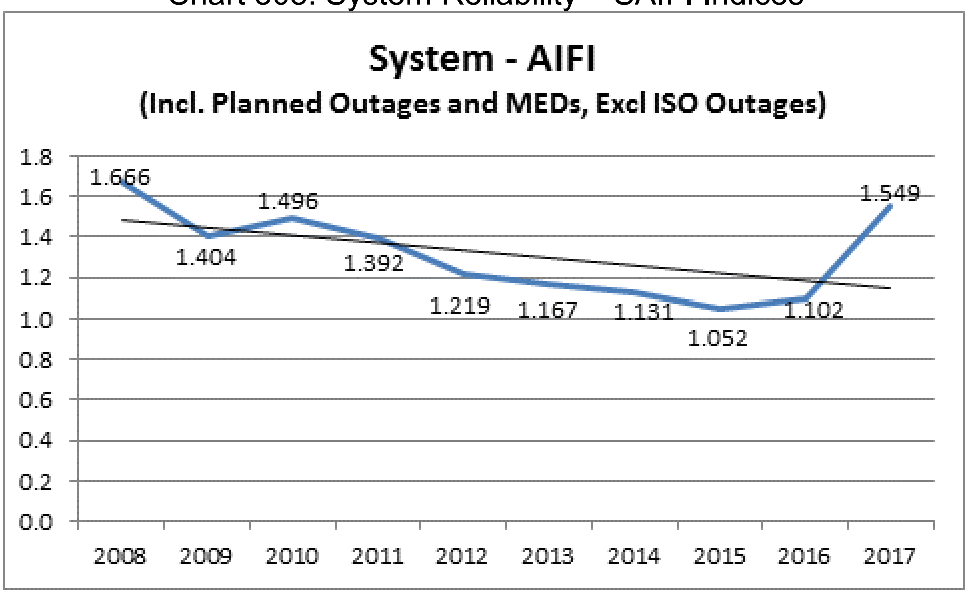


Chart 308: System Reliability – SAIFI Indices



3. MAIFI[11] Performance Results <u>(MED Included)</u>

Chart 309: Division Reliability – MAIFI Indices

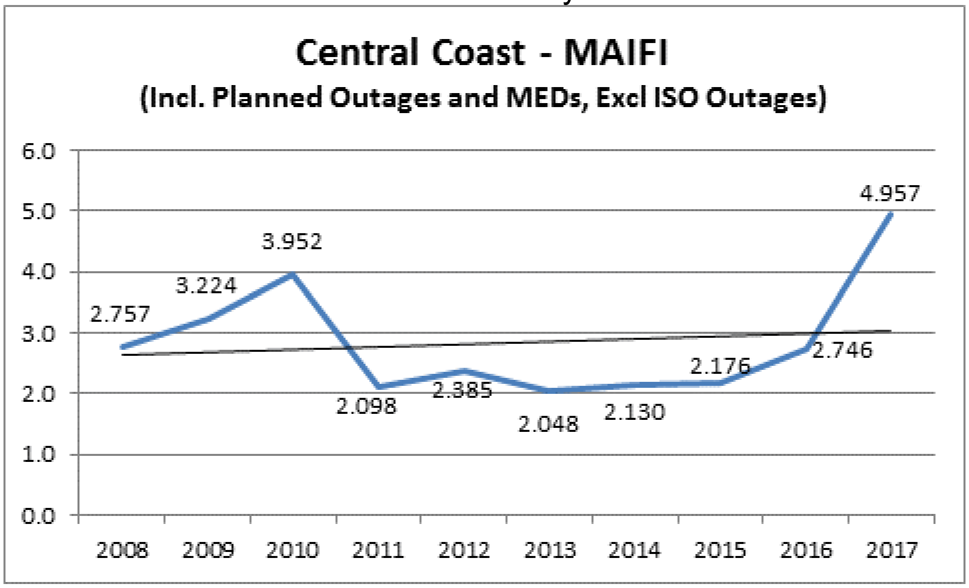
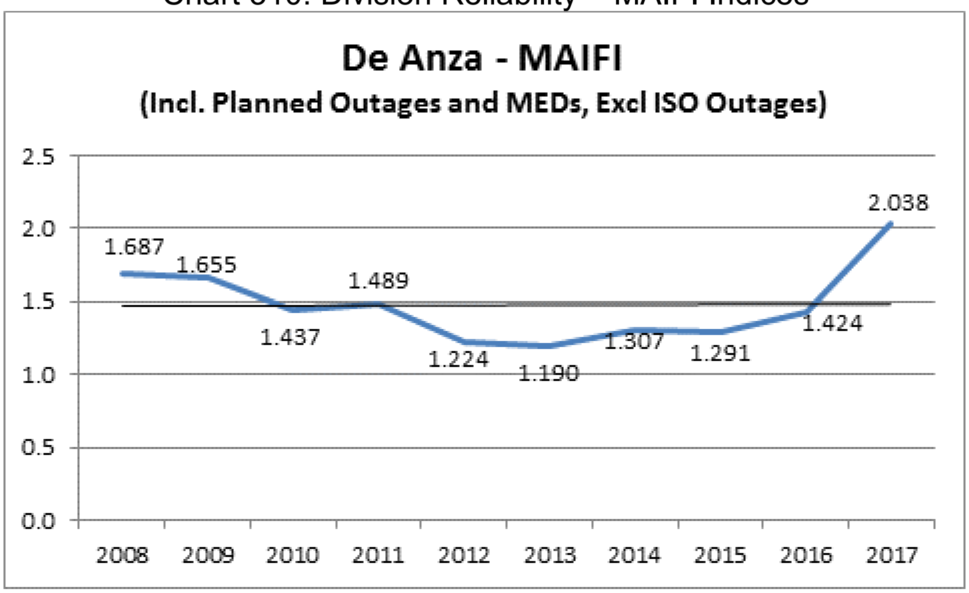


Chart 310: Division Reliability – MAIFI Indices



11 See footnote 4 above.

Chart 311: Division Reliability – MAIFI Indices

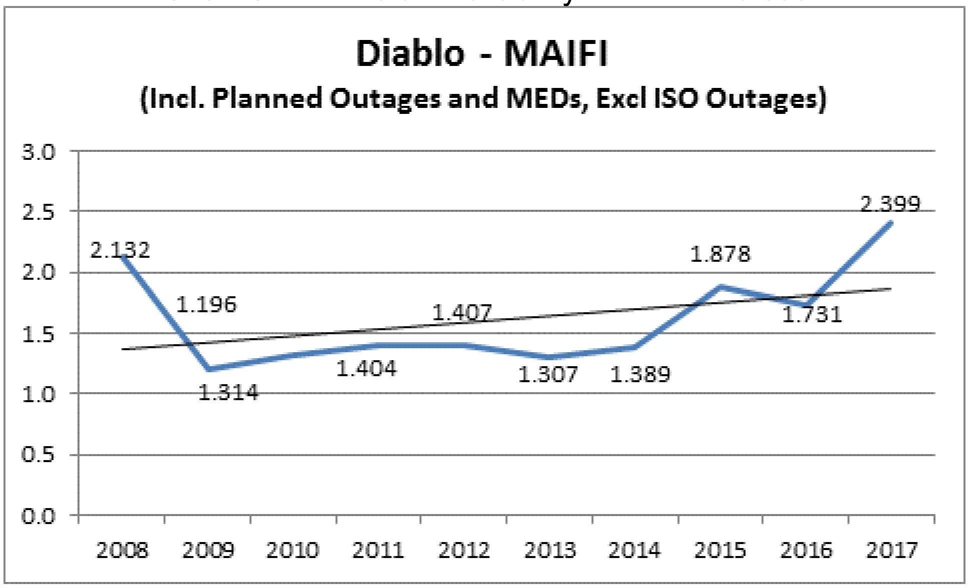


Chart 312: Division Reliability – MAIFI Indices

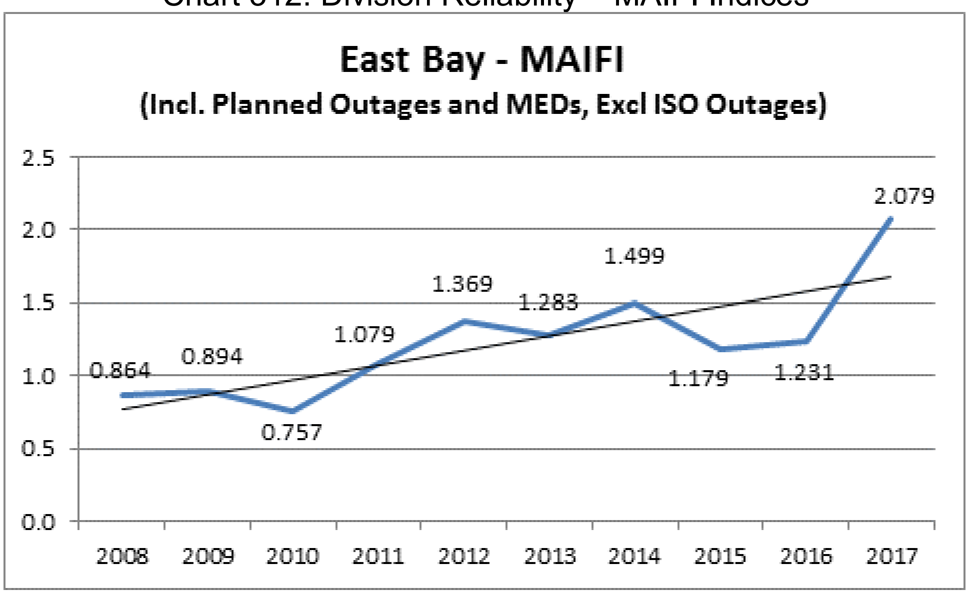


Chart 313: Division Reliability – MAIFI Indices

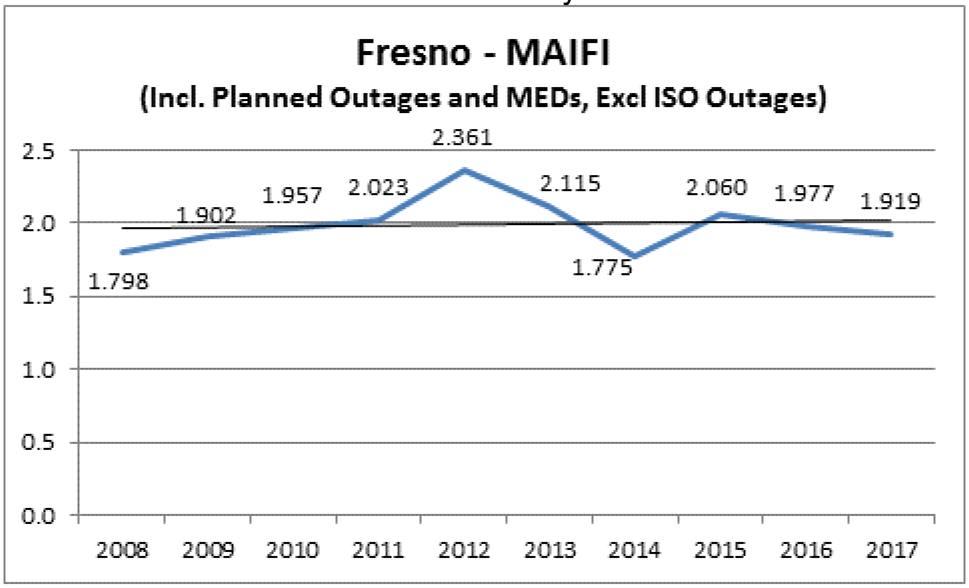


Chart 314: Division Reliability – MAIFI Indices

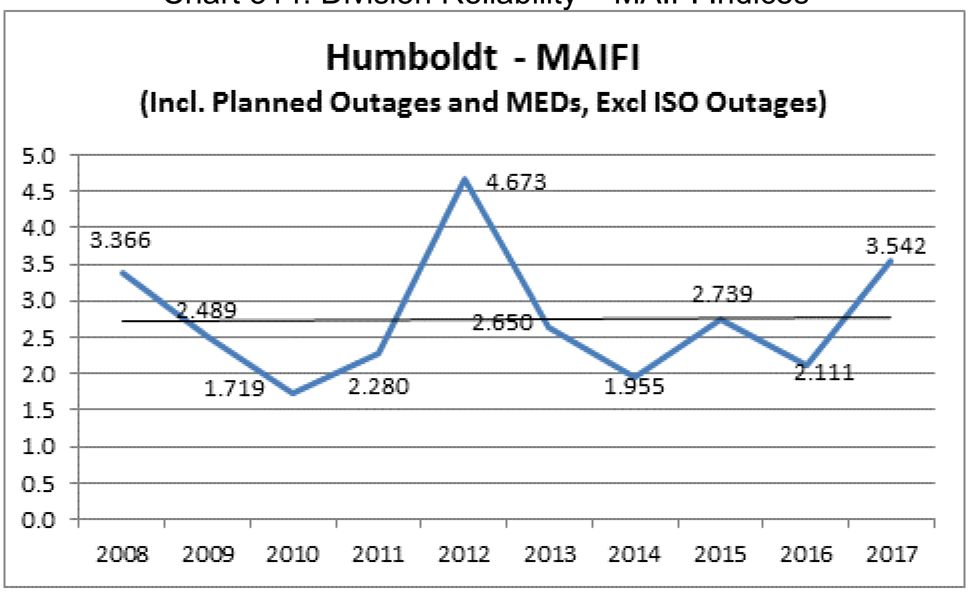


Chart 315: Division Reliability – MAIFI Indices

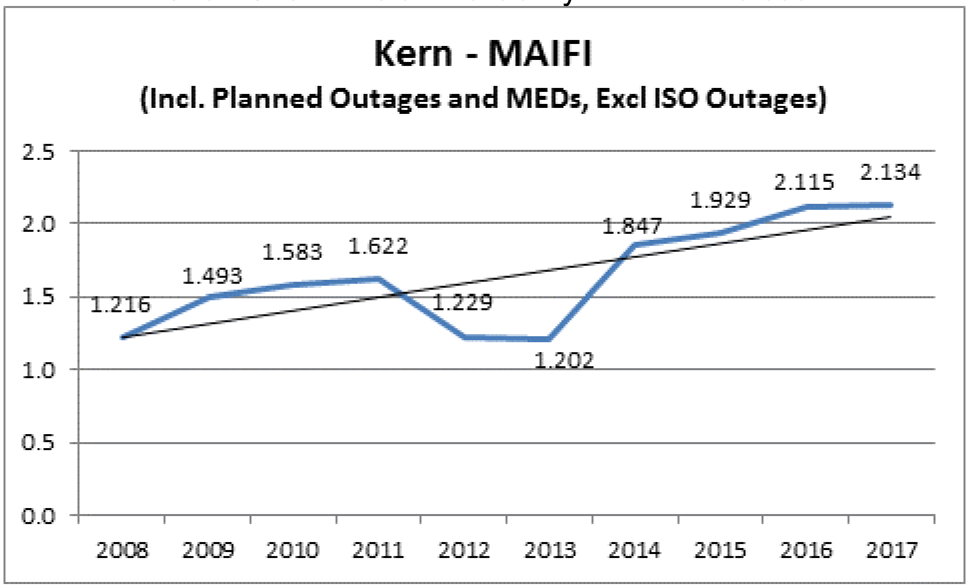


Chart 316: Division Reliability – MAIFI Indices

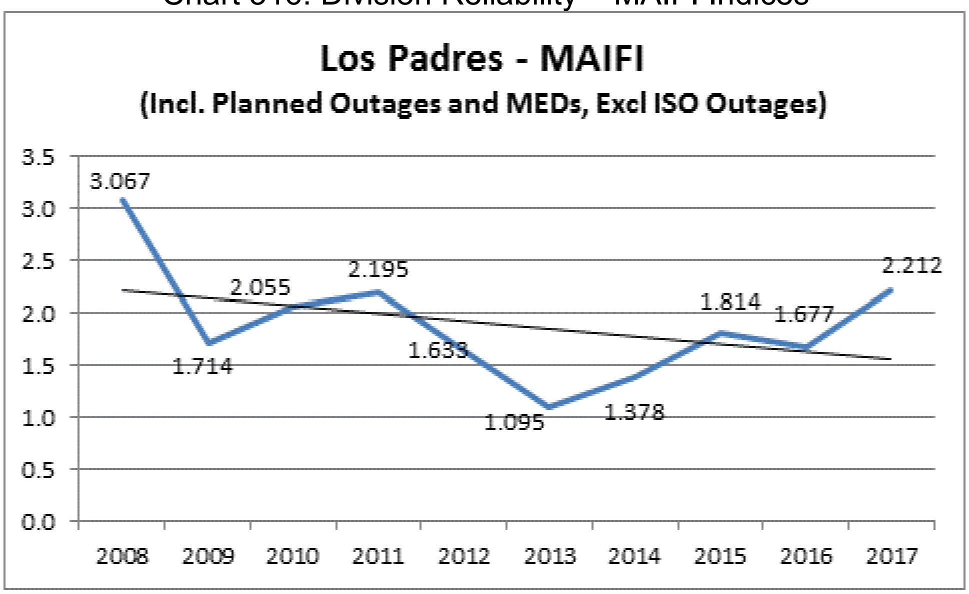


Chart 317: Division Reliability – MAIFI Indices

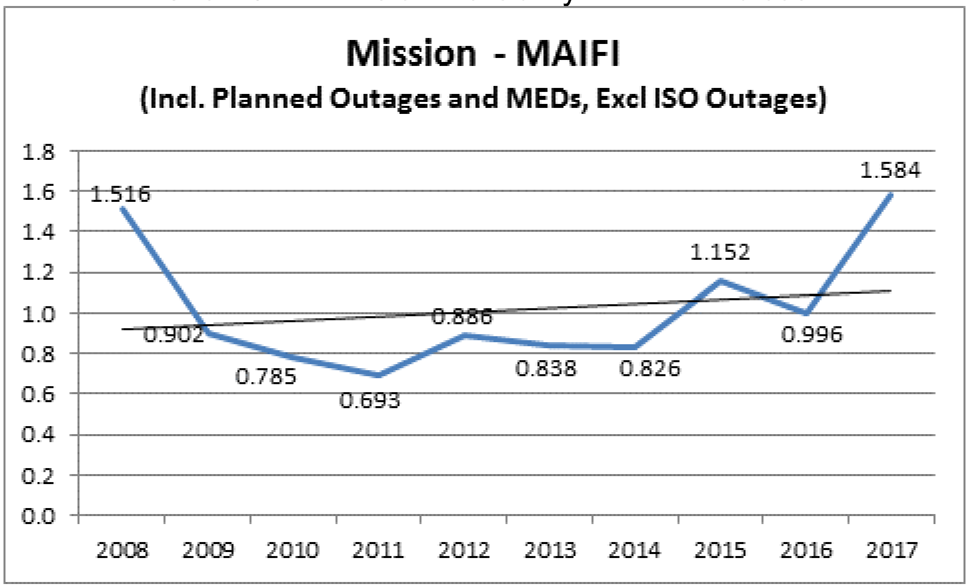


Chart 318: Division Reliability – MAIFI Indices

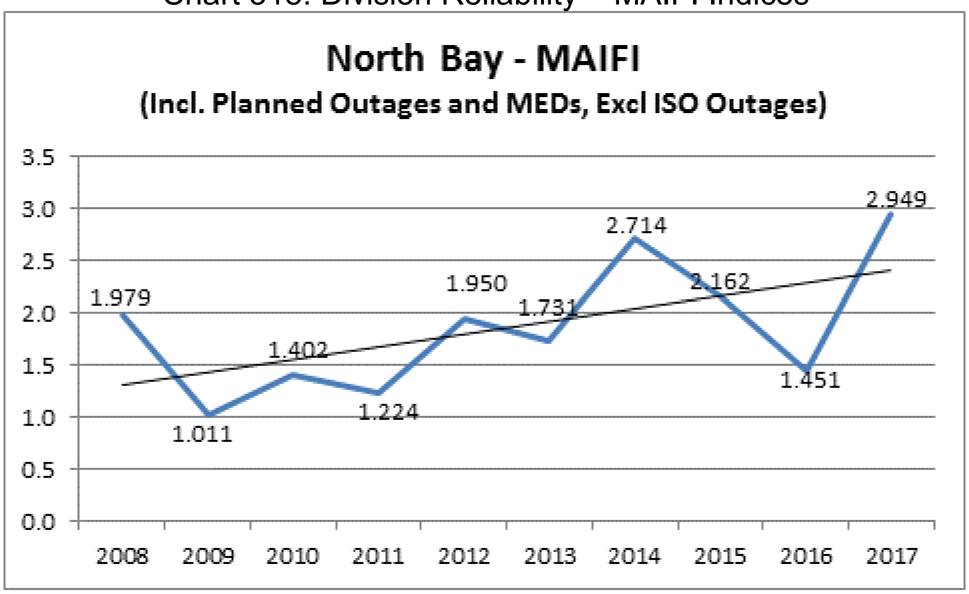


Chart 319: Division Reliability – MAIFI Indices

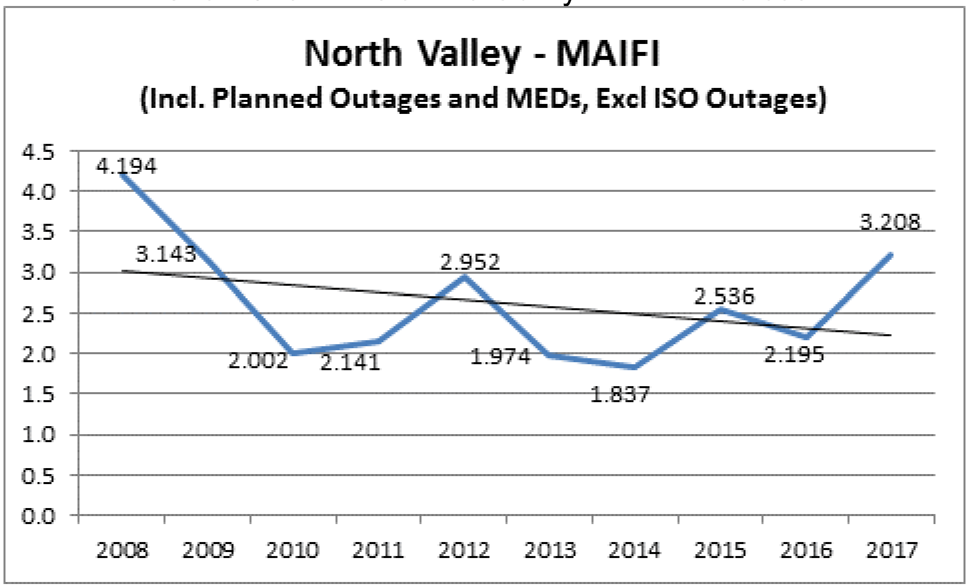


Chart 320: Division Reliability – MAIFI Indices

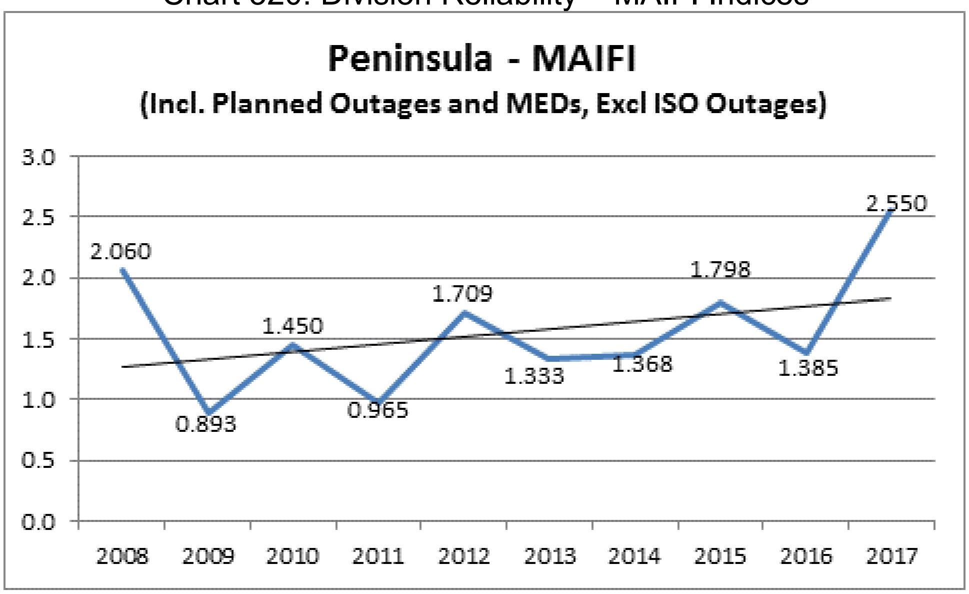


Chart 321: Division Reliability – MAIFI Indices

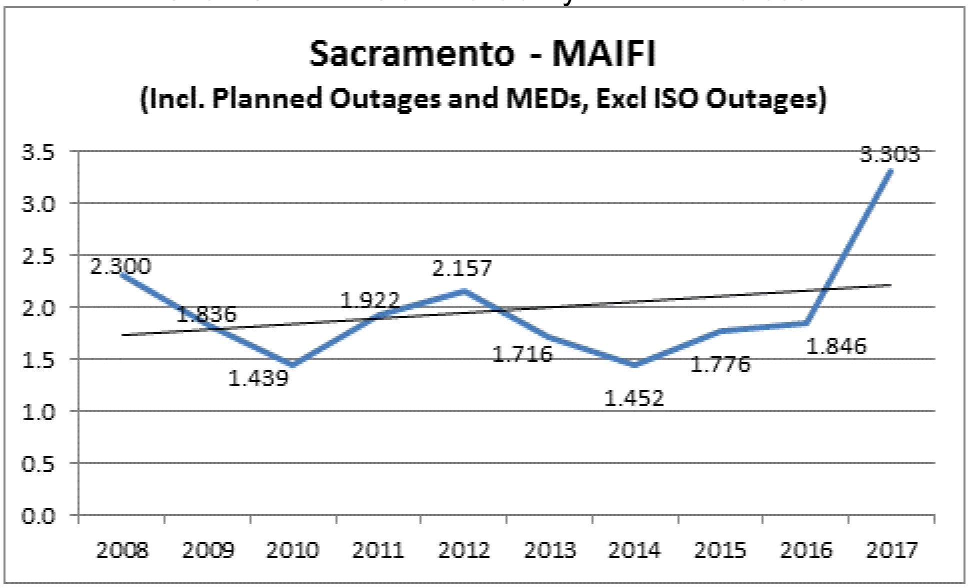


Chart 322: Division Reliability – MAIFI Indices

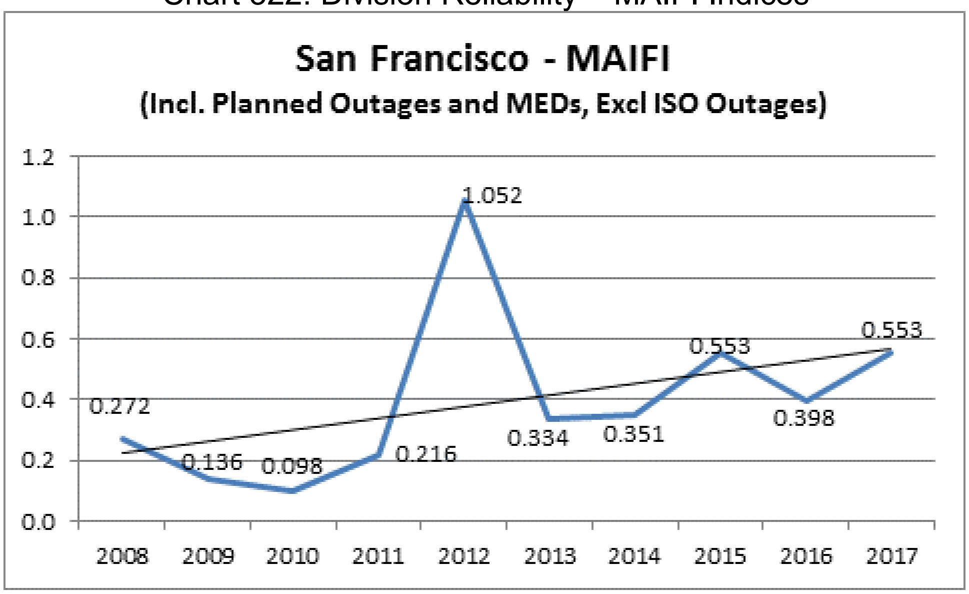


Chart 323: Division Reliability – MAIFI Indices

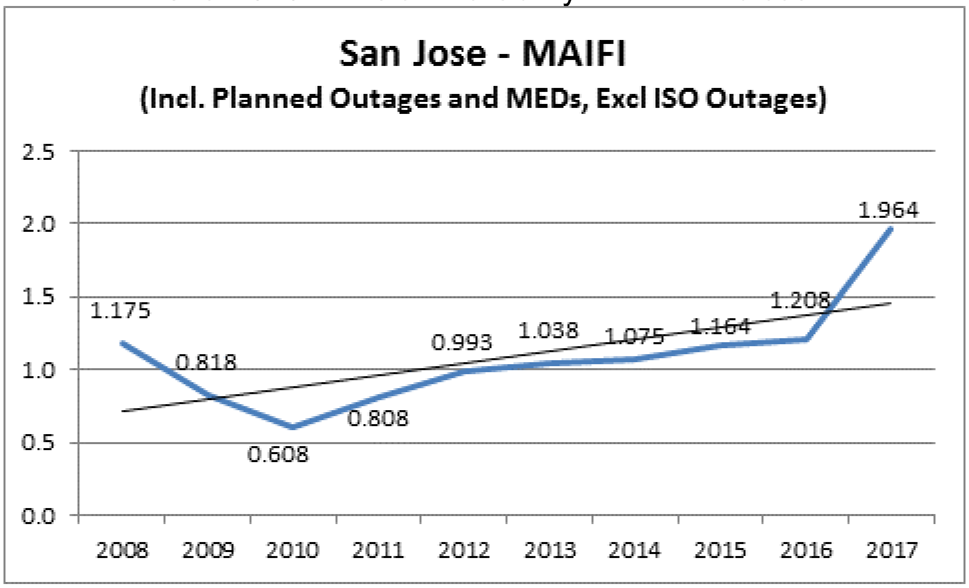


Chart 324: Division Reliability – MAIFI Indices

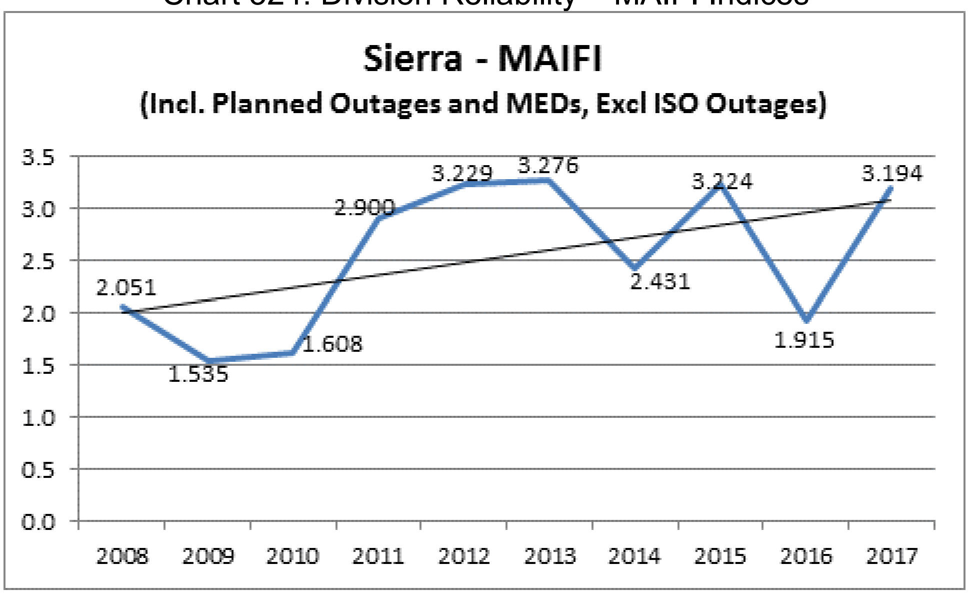


Chart 325: Division Reliability – MAIFI Indices

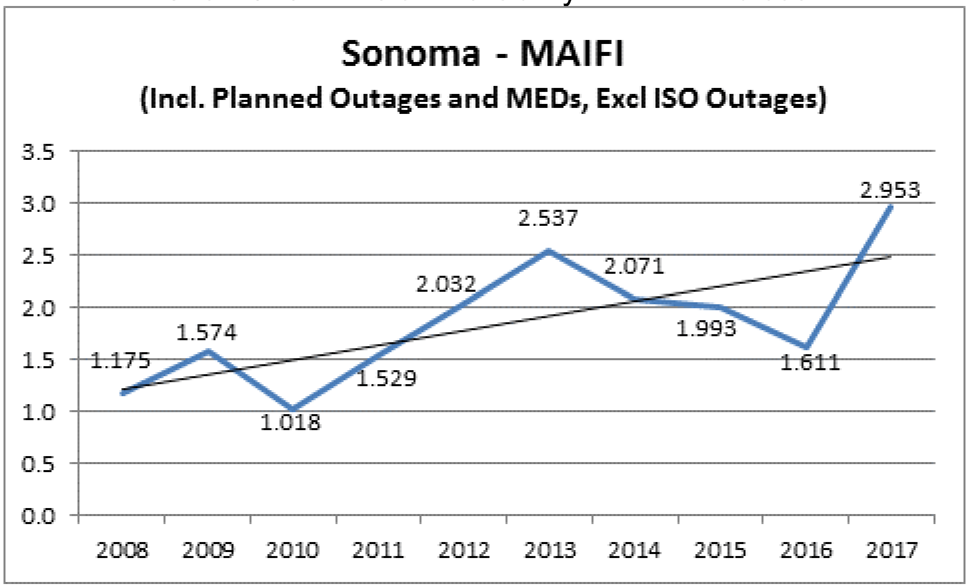


Chart 326: Division Reliability – MAIFI Indices

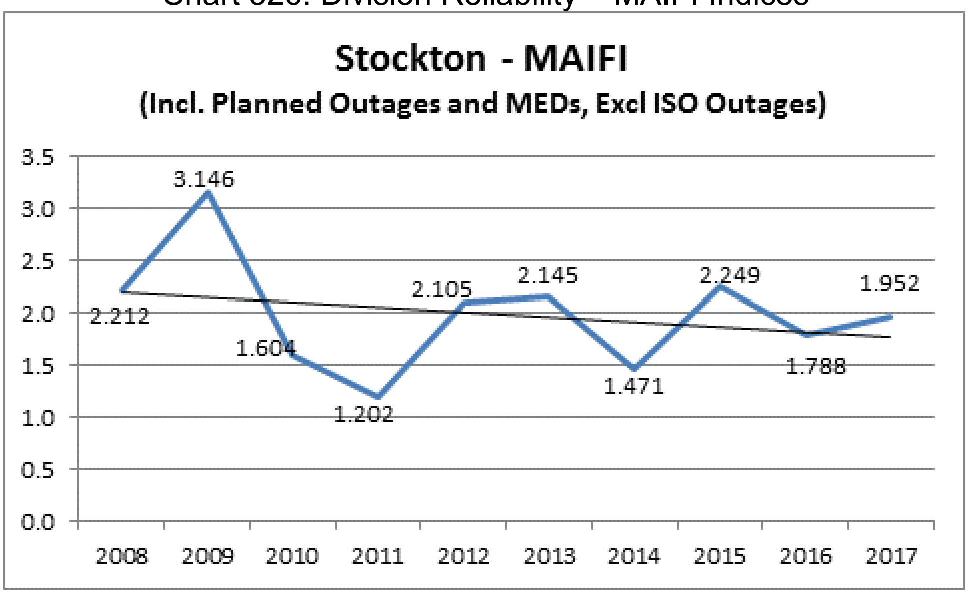


Chart 327: Division Reliability – MAIFI Indices

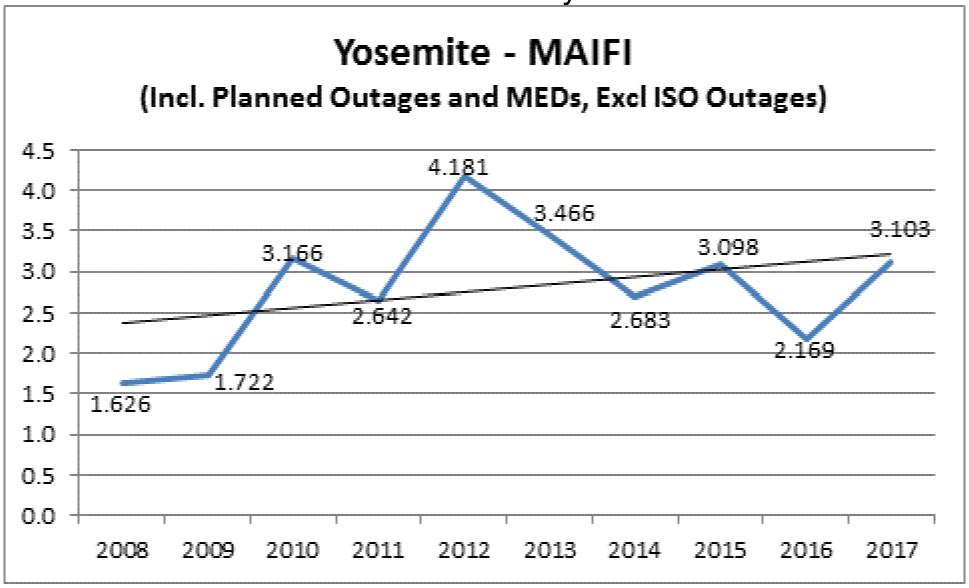
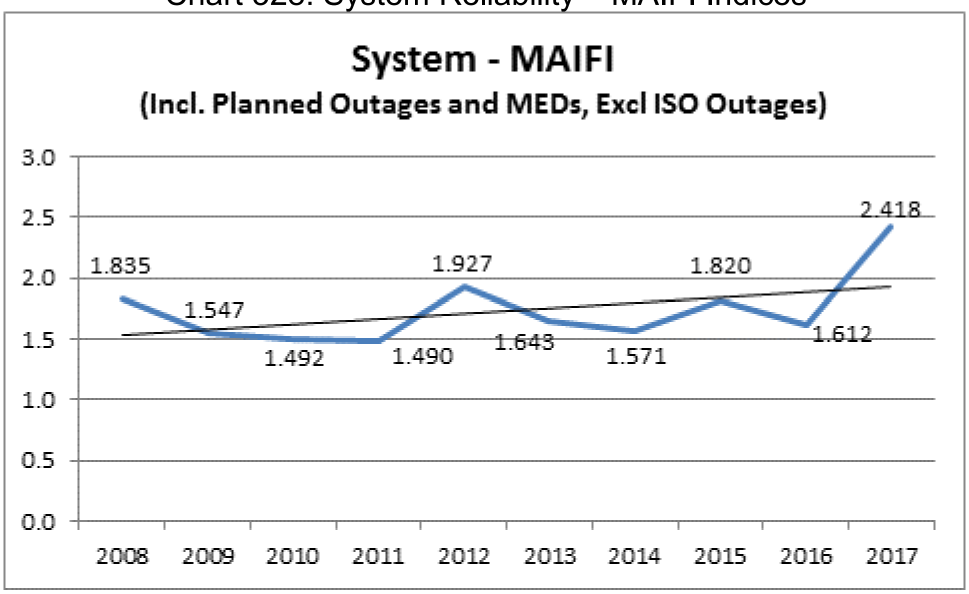


Chart 328: System Reliability – MAIFI Indices



4. CAIDI Performance Results (MED Included)

Chart 329: Division Reliability – CAIDI Indices

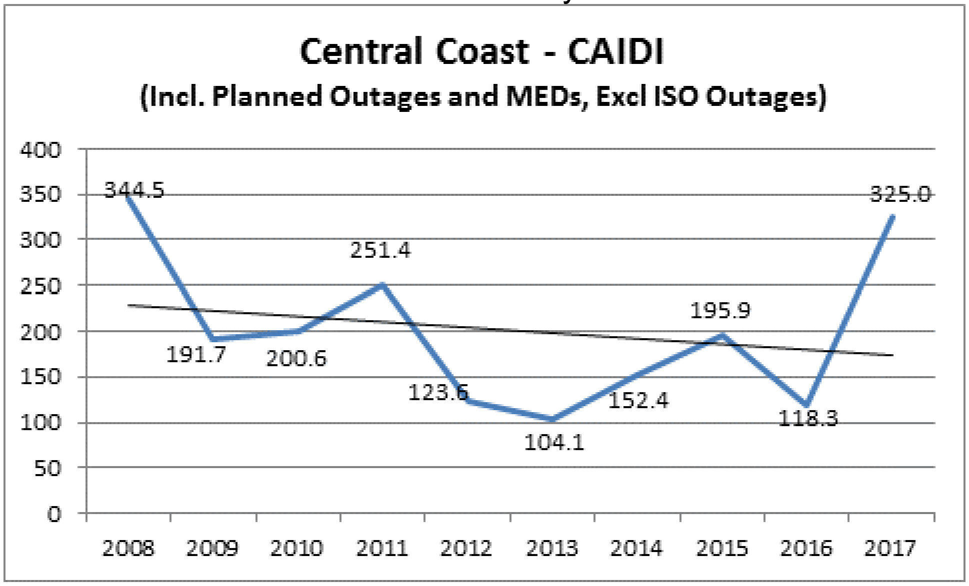


Chart 330: Division Reliability – CAIDI Indices

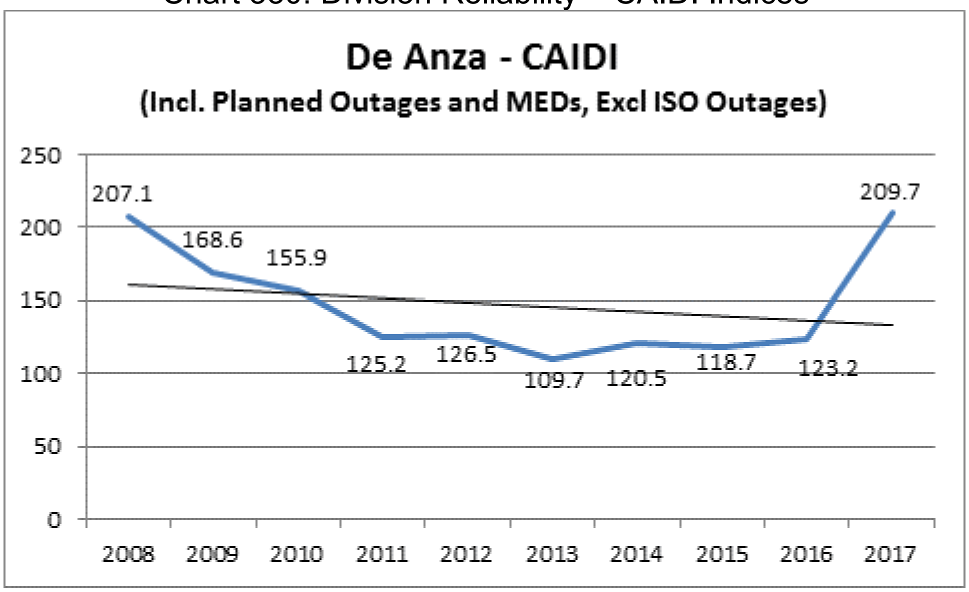


Chart 331: Division Reliability – CAIDI Indices

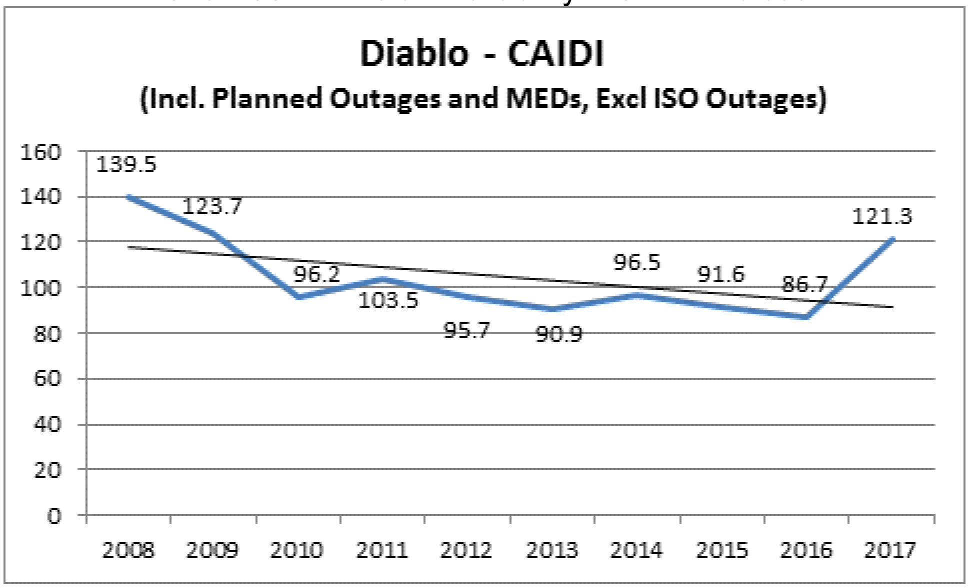


Chart 332: Division Reliability – CAIDI Indices

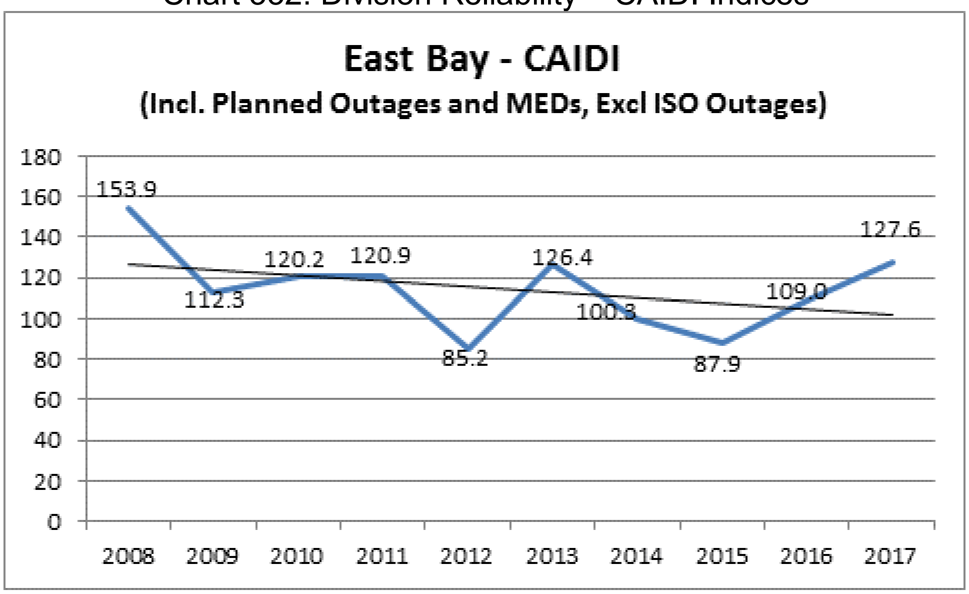


Chart 333: Division Reliability – CAIDI Indices

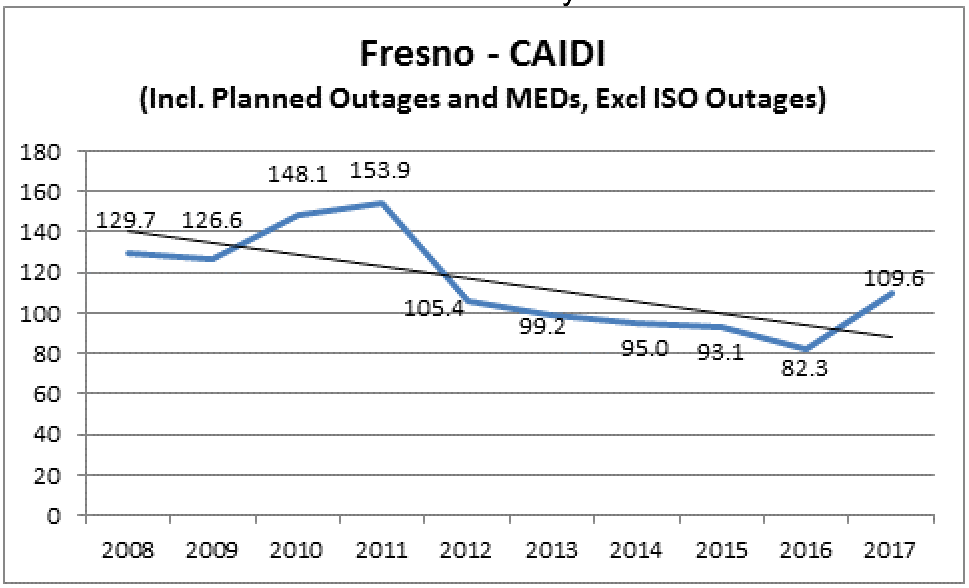


Chart 334: Division Reliability – CAIDI Indices

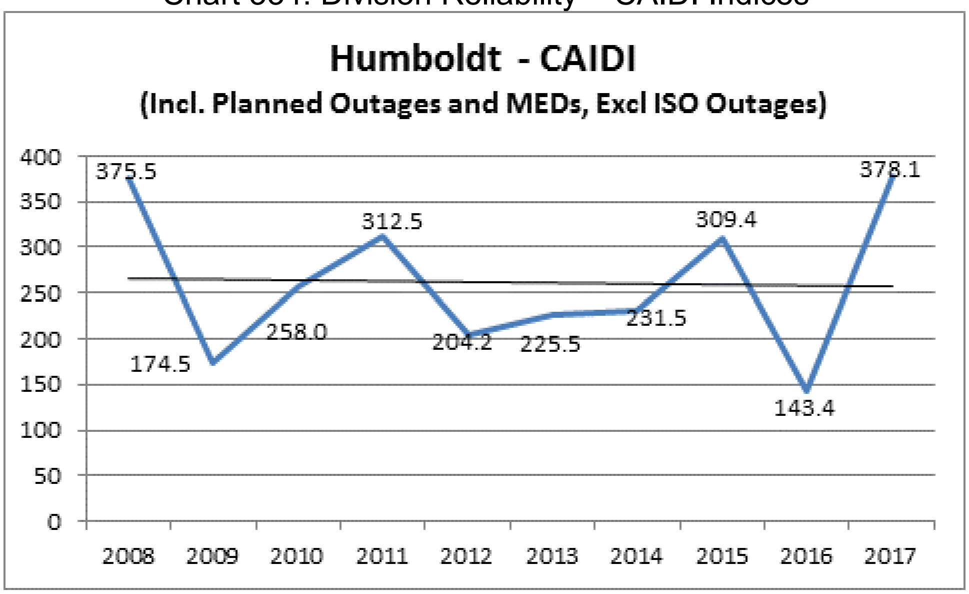


Chart 335: Division Reliability – CAIDI Indices

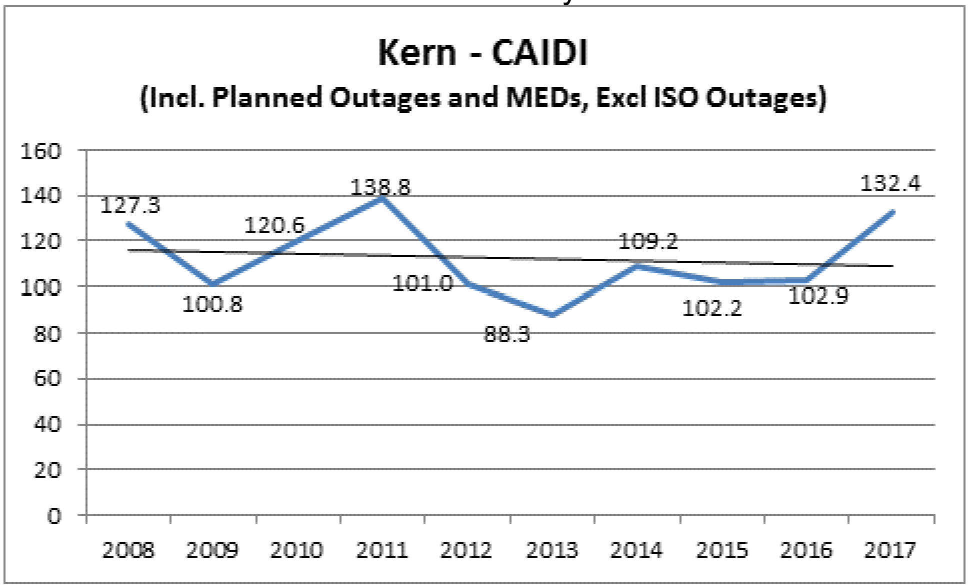


Chart 336: Division Reliability – CAIDI Indices

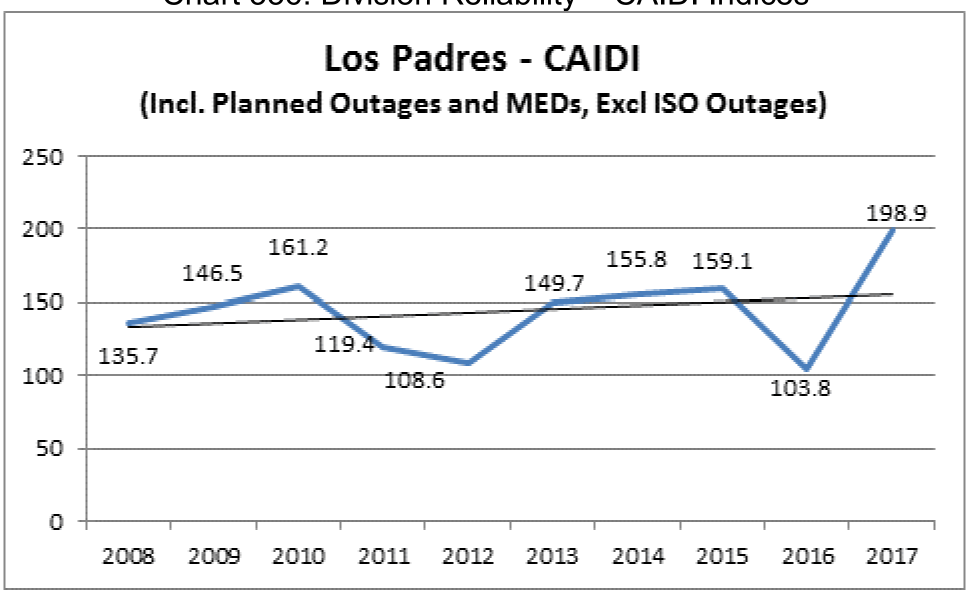


Chart 337: Division Reliability – CAIDI Indices

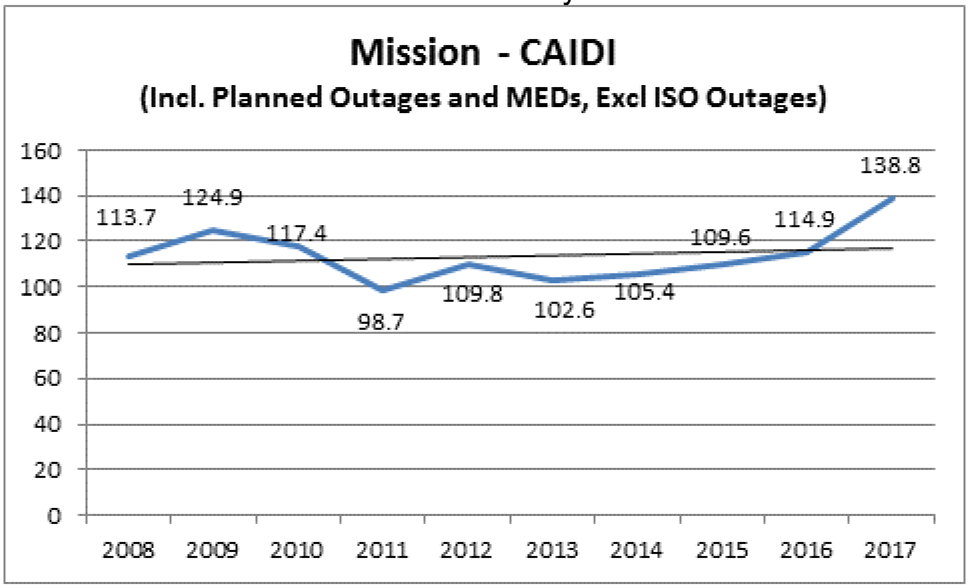


Chart 338: Division Reliability – CAIDI Indices

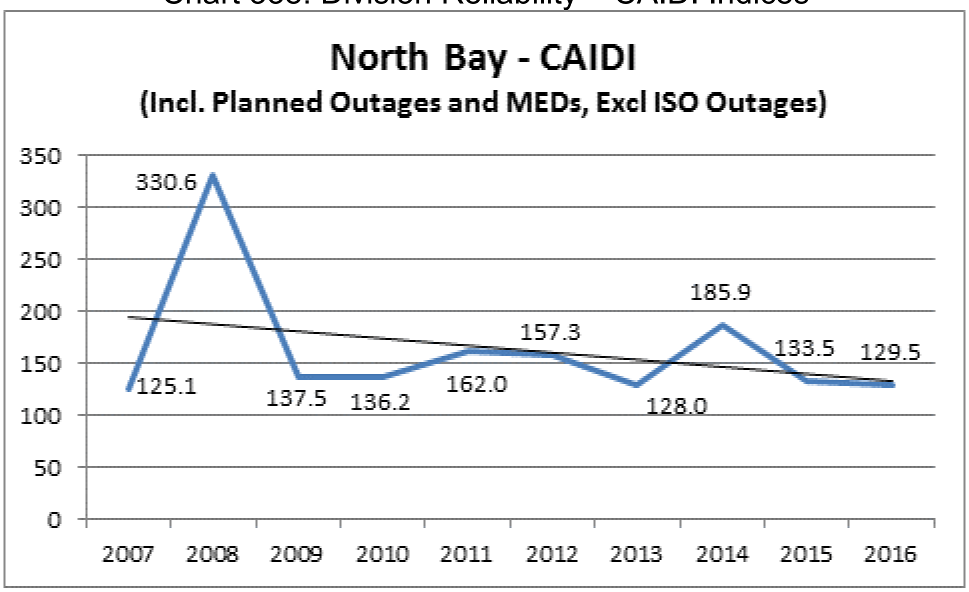


Chart 339: Division Reliability – CAIDI Indices

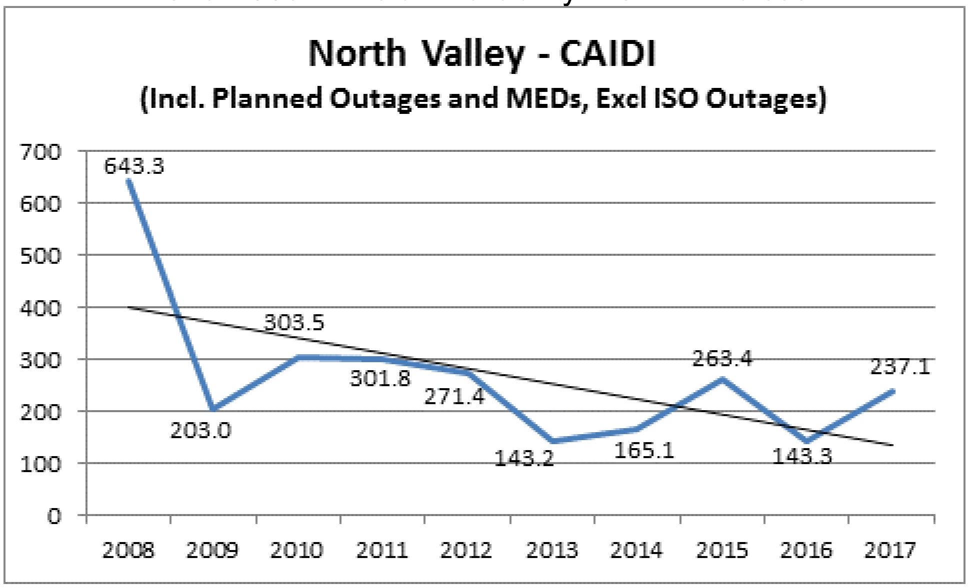


Chart 340: Division Reliability – CAIDI Indices

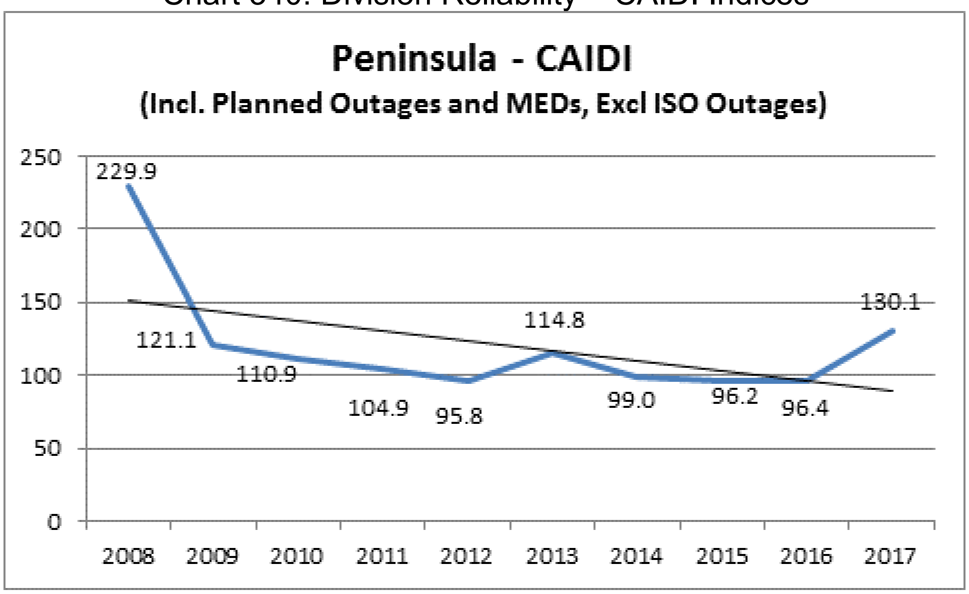


Chart 341: Division Reliability – CAIDI Indices

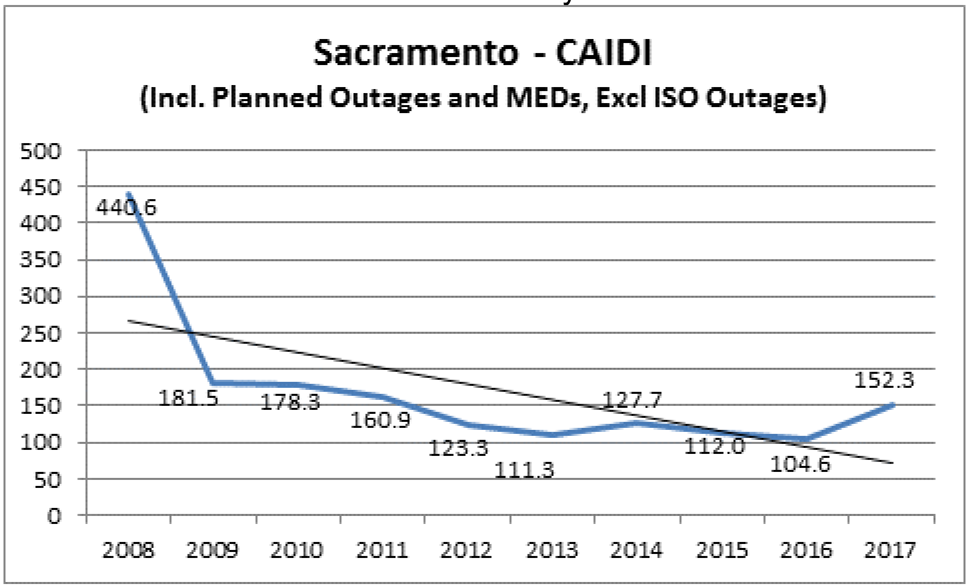


Chart 342: Division Reliability – CAIDI Indices

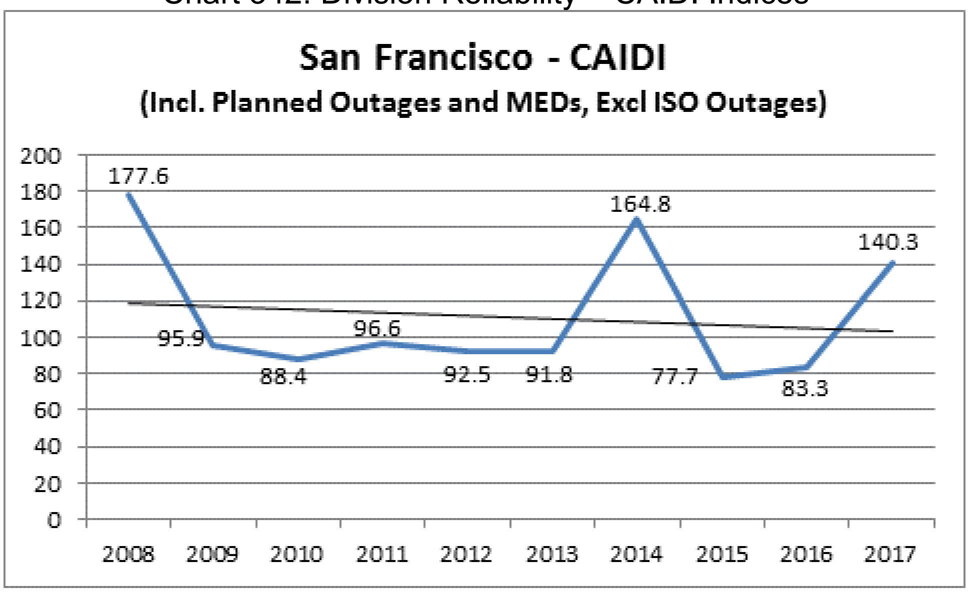


Chart 343: Division Reliability – CAIDI Indices

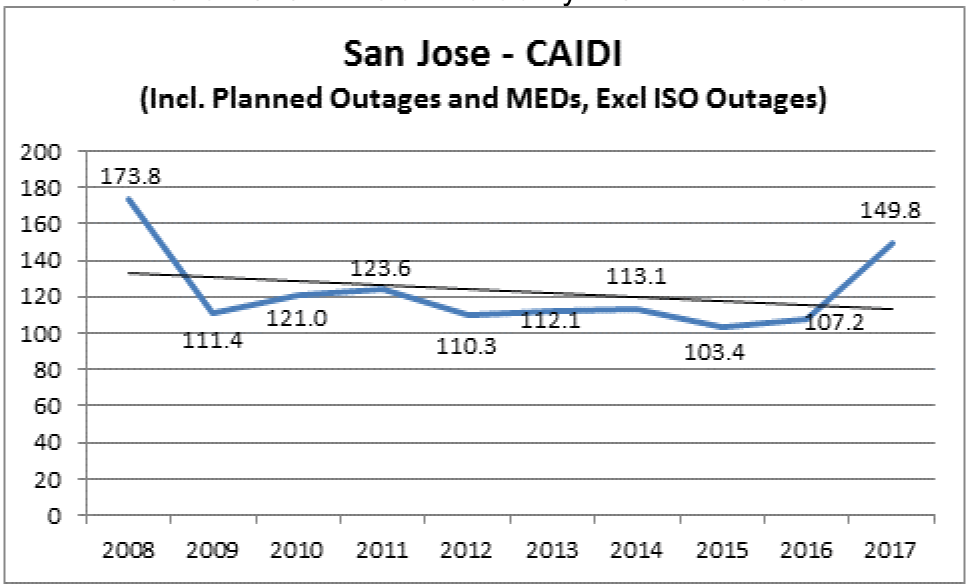


Chart 344: Division Reliability – CAIDI Indices

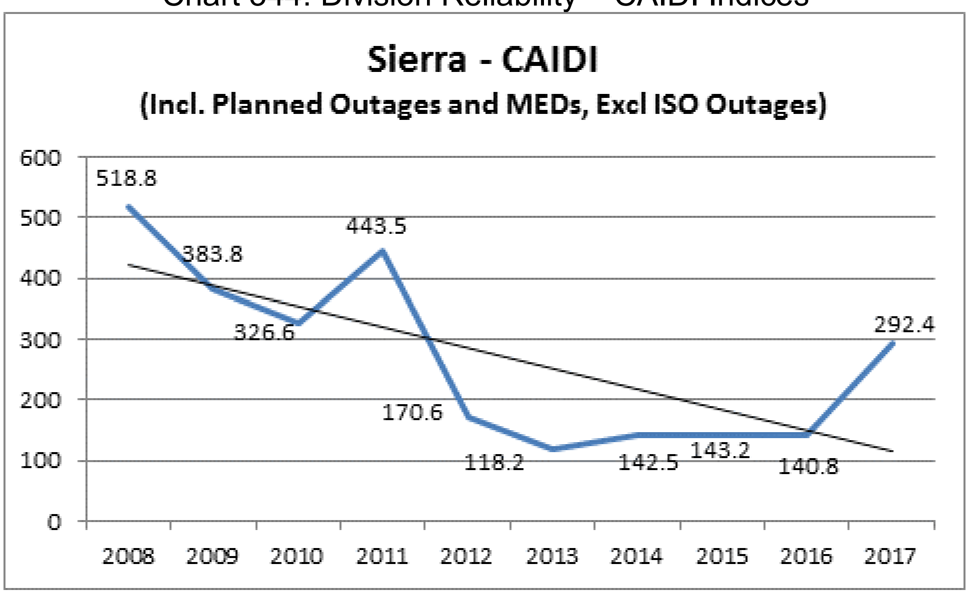


Chart 345: Division Reliability – CAIDI Indices

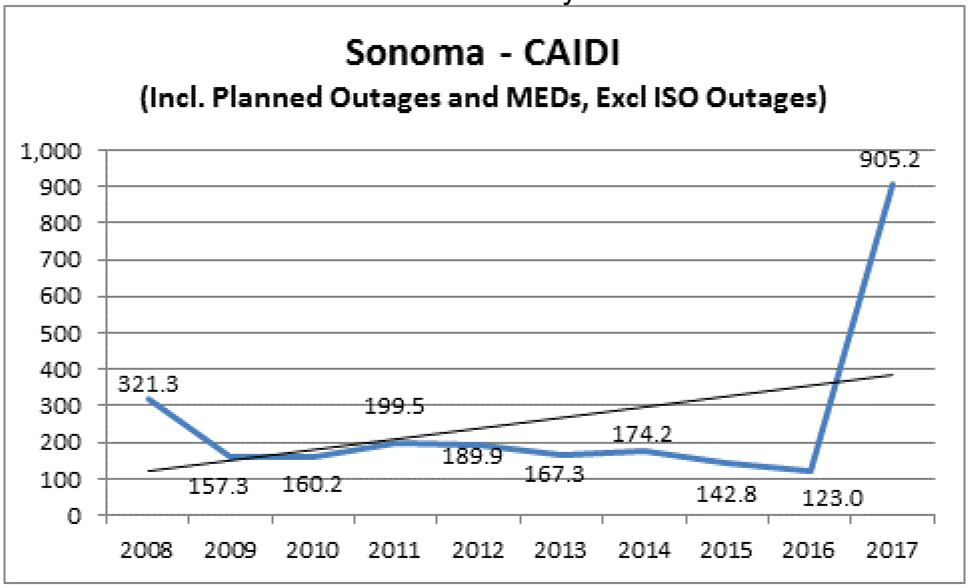


Chart 346: Division Reliability – CAIDI Indices

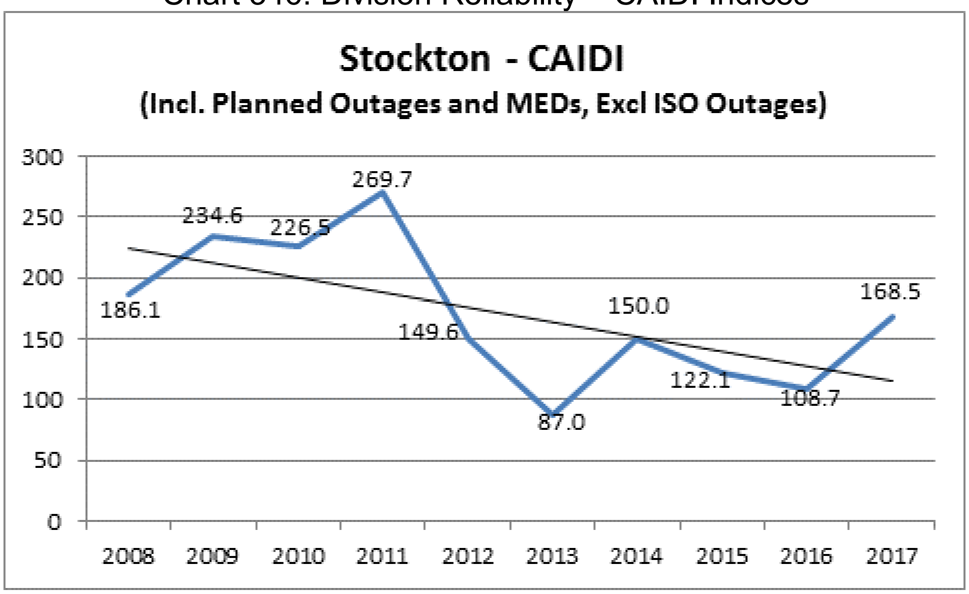


Chart 347: Division Reliability – CAIDI Indices

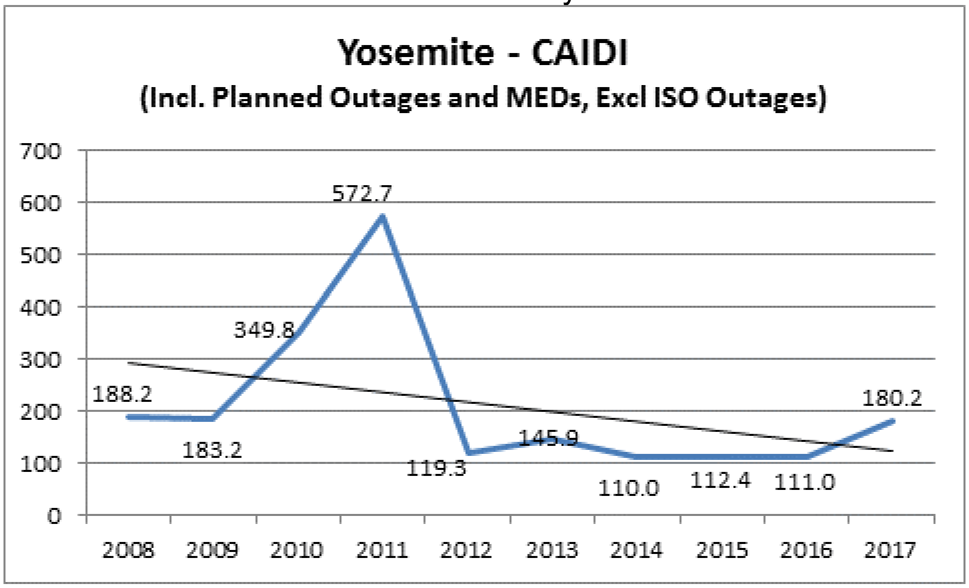
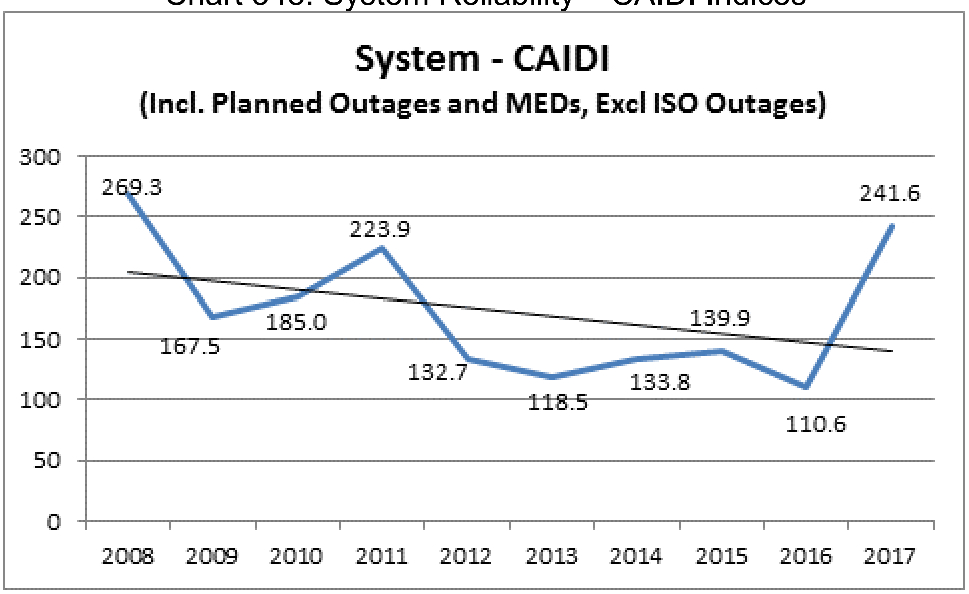


Chart 348: System Reliability – CAIDI Indices



d. The number of planned outages, date, and location of planned outages in each division on an annual basis.

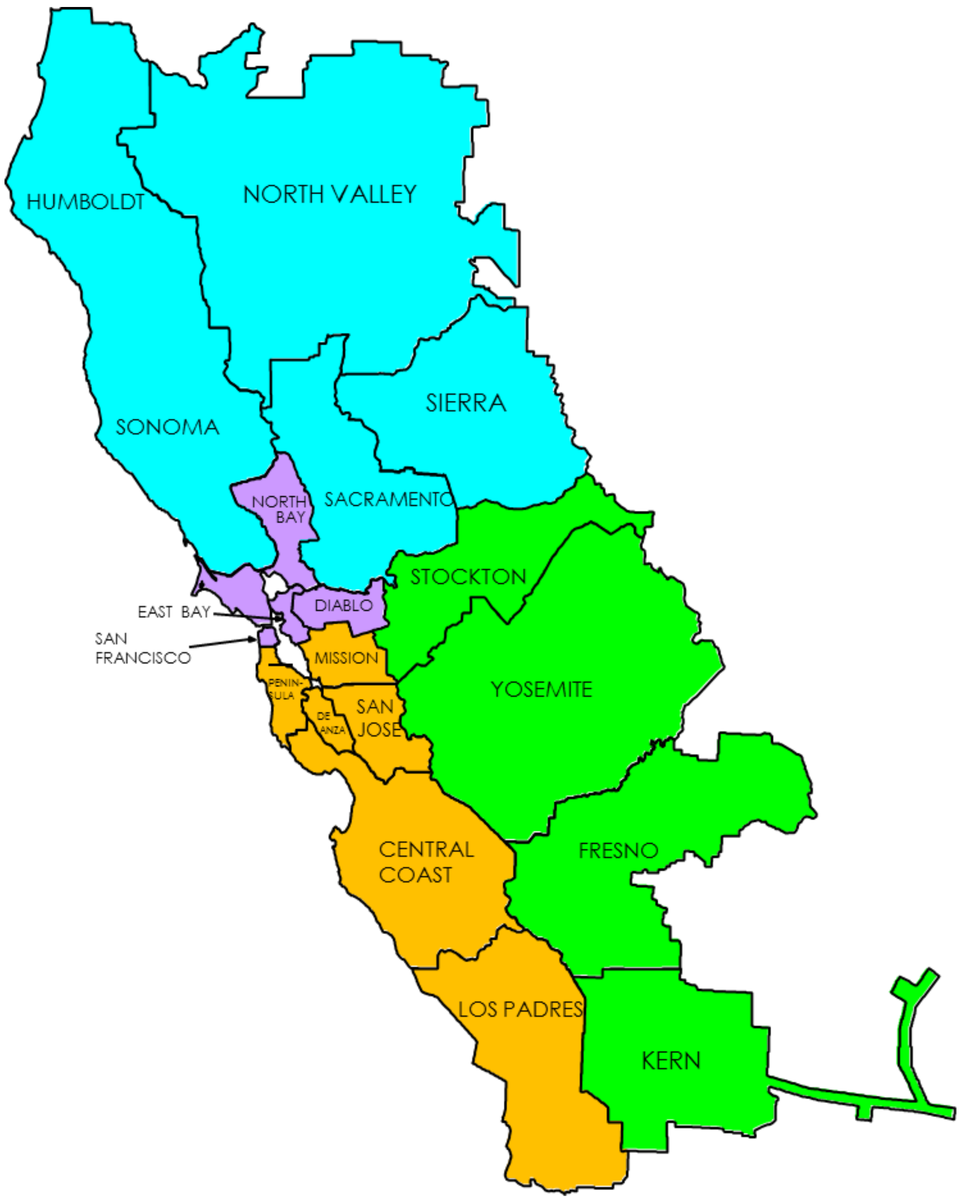
PG&E is submitting detailed planned outage information on a confidential basis under seal as required by Appendix B of Decision 16-01-008, at footnote 7. Listed below is a summary of planned outages by year from 2008 through 2017:

Table 159: Ten Years Planned Outage Summary (2008-2017)

Year	Total Planned Outages
2008	11085
2009	11315
2010	12373
2011	17244
2012	17006
2013	21982
2014	18026
2015	18891
2016	20253
2017	18912

4. Service Territory Map

PG&E Service Territory



5. Top 1% of Worst Performing Circuits (WPC) excluding Major Event Day (MED)

PG&E's selection of its worst performing circuits is comprised of two lists. List #1 (see Table 160 below) is ranked by the highest number of sustained outages the average customer on the circuit experiences on an annual basis (AIFI). List #2 (see Table 161 below) is ranked by the highest total number of sustained outage minutes that the average customer on the circuit experiences on an annual basis (AIDI). PG&E recognizes that a given circuit could appear on both the AIDI and AIFI lists of worst performing circuits. In consideration of this overlap, PG&E identified 19 circuits on each list with six circuits appearing on both lists. The net total of 32 individual circuits represents one percent of the total number of circuits in PG&E's distribution system.

For purposes of this reliability report, PG&E's focus in developing the worst performing circuit lists has been on the impact to the *average customer on the circuit*. This is different than a focus on a circuit's impact or contribution to overall system reliability performance. For example, a circuit with 50 customers that experienced 5 sustained outages affecting the entire circuit (a total of 250 sustained customer outages) would have a higher worst performing circuit ranking than a circuit with 1,000 customers where each customer experienced 3 sustained outages (a total of 3,000 sustained customer outages). For purposes of the worst performing circuit list, the fact that the average customer on the smaller circuit experienced five sustained outages caused that circuit to rank as performing worse than a circuit where the average customer only experienced three sustained outages.

Consistent with Decision 16-01-008, PG&E has used three years (2015 - 2017) of outage data in developing the worst performing circuit lists. PG&E has excluded outage data involving planned outages, CAISO outages and major event days. PG&E has also limited its review to mainline circuit outages only (in other words, only outages involving a circuit breaker, a recloser, or an interrupter). Finally, PG&E has excluded outages in which the circuit was in an abnormal configuration. An abnormal circuit configuration occurs when additional customers are temporarily added to a circuit in order to support construction or maintenance work performed on an adjacent circuit. Analysis has shown that outages associated with abnormal circuit configurations would skew the results of the worst performing circuit lists. PG&E believes that this approach best defines a worst performing circuit.

Table 160 lists the worst performing circuits by outage frequency and indicates the worst AIFI circuit was the Garberville 1101 circuit. The average customer on the Garberville 1101 circuit experienced 4.95 sustained mainline outages per year from 2015-2017 (resulting from the operation of a circuit breaker or an automatic recloser).

Table 161 focuses on the duration of the sustained outages. Here, the Echo Summit 1101 circuit was identified as the worst AIDI performing circuit. For this circuit, the average customer on the circuit experienced 1,473 sustained mainline outage minutes per year from 2015-2017 (resulting from the operation of a circuit breaker or an automatic recloser).

Six circuits (Garberville 1102, Alpine 1102, Tulare Lake 2108, Otter 1102, Hoopa 1101, and Echo Summit 1101) appear on both lists. These six circuits are highlighted in red within Tables 160 and 161. Additionally, thirteen circuits marked with an asterisk (*) indicates that they are “deficient”. A “deficient” circuit is defined as a circuit that has appeared consecutively on the WPC lists for the previous two years (see the *“Deficient” Worst Performing Section* below for further details). [12]

Table 160: AIFI Worst Performing Circuit for 2017[13]

#	DIVISION	SUBSTATION	CIRCUIT NAME	TOTAL CUSTOMERS	CIRCUIT MILES	% OH	% UG	3 YR AVG MAINLINE OUTAGES	3 YR AVG AIFI
1	HUMBOLDT	GARBERVILLE	GARBERVILLE 1101*	1,244	171	98%	2%	14.0	4.95
2	HUMBOLDT	GARBERVILLE	GARBERVILLE 1102*	1,787	157	95%	5%	13.0	4.41
3	STOCKTON	ALPINE	ALPINE 1102*	309	3	0%	100%	4.0	4.00
4	SIERRA	EL DORADO PH	EL DORADO PH 2101*	4,611	161	99%	1%	13.7	3.55
5	FRESNO	TULARE LAKE	TULARE LAKE 2108*	107	57	99%	1%	3.7	3.44
6	CENTRAL COAST	OTTER	OTTER 1102*	530	66	85%	15%	5.0	3.06
7	STOCKTON	AVENA	AVENA 1701	893	94	99%	1%	3.0	2.99
8	DE ANZA	LOS GATOS	LOS GATOS 1106	1,600	78	97%	3%	7.7	2.94
9	CENTRAL COAST	CAMP EVERS	CAMP EVERS 2105	3,849	98	97%	3%	13.0	2.90
10	HUMBOLDT	TRINIDAD	TRINIDAD 1102	764	25	86%	14%	5.3	2.82
11	HUMBOLDT	HOOPA	HOOPA 1101	1,980	150	93%	7%	7.3	2.81
12	STOCKTON	EIGHT MILE	EIGHT MILE 2106	188	34	98%	2%	3.3	2.79
13	SIERRA	ECHO SUMMIT	ECHO SUMMIT 1101	401	18	82%	18%	4.0	2.73
14	STOCKTON	SALT SPRINGS	SALT SPRINGS 2101	393	45	48%	52%	4.0	2.68
15	CENTRAL COAST	ROB ROY	ROB ROY 2105	7,028	105	74%	26%	8.0	2.66
16	KERN	WHEELER RIDGE	WHEELER RIDGE 1101	353	72	99%	1%	3.0	2.56
17	KERN	RIO BRAVO	RIO BRAVO 1106	566	57	99%	1%	2.7	2.47
18	FRESNO	ALPAUGH	ALPAUGH 1104	330	61	97%	3%	3.0	2.37
19	KERN	BLACKWELL	BLACKWELL 1102	128	33	100%	0%	2.7	2.37

12 The three-year average AIFI values are determined by the three-year average of the customers that experienced a sustained outage divided by the three-year average of the total customers served by that circuit. The three-year average AIDI values are determined by the three-year average of the customer-outage minutes divided by the three-year average of the total customers served by that circuit. These calculations are slightly different than determining the three-year average of just the actual recorded metric values for each of the three years..

13 The circuit mileage data in this report is determined through the use of PG&E’s Electric Distribution Geographic Information System (EDGIS). PG&E recently expanded the use of its EDGIS technology to map and analyze assets across its system and provide more accurate information about the expanse of its system and the mileage of particular circuits. As a result of using this more accurate technology, mileages for particular circuits may vary from prior reports.

Table 161: AIDI Worst Performing Circuit for 2017

#	DIVISION	SUBSTATION	CIRCUIT NAME	TOTAL CUSTOMERS	CIRCUIT MILES	% OH	% UG	3 YR AVG MAINLINE OUTAGES	3 YR AVG AIDI
1	SIERRA	ECHO SUMMIT	ECHO SUMMIT 1101	401	18	82%	18%	4.0	1,473
2	SACRAMENTO	WILKINS SLOUGH	WILKINS SLOUGH 1103	118	34	100%	0%	1.0	1,148
3	HUMBOLDT	ORICK	ORICK 1101*	89	10	90%	10%	1.0	1,142
4	NORTH VALLEY	BUCKS CREEK	BUCKS CREEK 1103	321	26	52%	48%	1.7	1,106
5	KERN	POSO MOUNTAIN	POSO MOUNTAIN 2101*	146	61	100%	0%	3.7	1,088
6	HUMBOLDT	GARBERVILLE	GARBERVILLE 1102*	1,787	157	95%	5%	13.0	970
7	HUMBOLDT	HOOPA	HOOPA 1101*	1,980	150	93%	7%	7.3	907
8	KERN	POSO MOUNTAIN	POSO MOUNTAIN 2104	14	13	96%	4%	1.0	905
9	HUMBOLDT	WILLOW CREEK	WILLOW CREEK 1103*	1,532	92	99%	1%	4.7	807
10	NORTH VALLEY	CHALLENGE	CHALLENGE 1101*	690	51	99%	1%	2.3	766
11	CENTRAL COAST	OTTER	OTTER 1102*	530	66	85%	15%	5.0	687
12	HUMBOLDT	WILLOW CREEK	WILLOW CREEK 1102	144	12	88%	12%	2.3	671
13	FRESNO	TULARE LAKE	TULARE LAKE 2108*	107	57	99%	1%	3.7	659
14	NORTH BAY	CALISTOGA	CALISTOGA 1101	1,683	128	92%	8%	6.3	635
15	STOCKTON	ALPINE	ALPINE 1102*	309	3	0%	100%	4.0	588
16	SIERRA	ALLEGHANY	ALLEGHANY 1101*	1,235	80	98%	2%	5.3	562
17	HUMBOLDT	WILLOW CREEK	WILLOW CREEK 1101	771	64	94%	6%	4.0	551
18	NORTH VALLEY	PIT NO.5	PIT NO.5 1101	126	28	86%	14%	3.0	539
19	NORTH VALLEY	RISING RIVER	RISING RIVER 1101*	734	60	98%	2%	3.0	493

Cost Effective Reliability Remediation:

For purposes of this reliability report, PG&E has identified circuits with the worst AIDI and AIFI performance based on the sustained outage impacts to the average customer on that circuit. However, PG&E generally focuses on circuits with larger numbers of customers to maximize the cost effectiveness of remediating poor reliability performing circuits. Specifically, PG&E identifies the worst performing circuits for cost effective remediation based on the highest total number of customers experiencing sustained outages (CESO) on a circuit. The reliability remediation of these worst performing circuits is addressed in PG&E's Targeted Circuit Program. In addition to the Targeted Circuit Program, internal reviews of unplanned outages are performed on a regular basis. The objective of the outage review process is to identify and minimize chronic reliability issues that affect smaller number of customers. Cost effective remediation work that addresses those circuits identified from the outage review process are incorporated into PG&E's base reliability work.

In the Targeted Circuit Program, PG&E's distribution engineers analyze the causes and characteristics of historical outages as well as review the current circuit design in order to identify targeted work that will improve the circuit's reliability performance. The typical targeted circuit work includes, as appropriate for the circuit, installing new fuses and line reclosers, replacing overhead and underground conductors, installing new fault indicators, reframing poles to increase phase separation, installing animal/bird guards, repairing or replacing deteriorated equipment, completing pending reliability related maintenance work, performing infrared inspections, and trimming trees. It typically takes two to three years for a targeted circuit project to be initiated, engineered, and constructed.

The anticipated goal of the Targeted Circuit Program is to achieve a 25 percent reliability performance improvement per circuit. The actual 2017 historical results for the Targeted Circuit Program have seen an average range of 23 to 55 percent in the program's reliability performance improvement by year since 2009. As reported in the 2017 GRC, the Targeted Circuit Program had a benefit to cost ratio of 2.75 to 1 based on the Values of Service analysis.

Most of the listed worst performing circuits have high CESO values. As a result, most of the worst performing circuits have been or will be incorporated into the Targeted Circuit Program. For those worst performing circuits not incorporated into the Targeted Circuit Program, PG&E will evaluate what remedial action, if any, is appropriate. This includes determining whether any remediation action has been or will be performed through PG&E's base reliability work.

As forecasted in PG&E's 2017 General Rate Case (GRC), PG&E originally expected to complete an average of 37 circuits in the Targeted Circuit Program per year through 2019, at a cost of $26.0 million per year. Twelve targeted circuit projects were successfully completed in 2017. PG&E has since re-adjusted its targeted circuit forecast in support of the new Community Wildfire Safety Program (CWSP). Specifically, PG&E is currently developing a new System Hardening Program to minimize risks associated with wildfire ignitions through the replacement of overhead conductor with tree wire, the upgrade of wood poles with non-wood poles, and the conversion of overhead conductor to underground conductor in targeted locations. The primary area of focus for the System Hardening Program will be in the CPUC High Fire Threat District – Tier 3 (Extreme Risk). The anticipated start date to fully rollout the new System Hardening Program is in the 2020-21 timeframe. Complete details of the CWSP and System Hardening Program will be reflected in the upcoming 2020 General Rate Case

<u>"Deficient" Worst Performing Circuits:</u>

The circuits listed below are "deficient" (WPC) circuits in response to section 5b of CPUC D 16-008-001, Appendix B:

1. GARBERVILLE 1101
   i. An explanation of why it was ranked as a "deficient" circuit:
      - Three-year (2013-2015) average AIFI score of 2.37
      - Three-year (2014-2016) average AIFI score of 4.98
      - Three-year (2015-2017) average AIFI score of 4.95
   ii. A historical record of the metric:
      - AIFI 2013 = 0.93
      - AIFI 2014 = 3.90
      - AIFI 2015 = 2.27
      - AIFI 2016 = 8.76
      - AIFI 2017 = 3.81
   iii. An explanation of why it was on the deficiency list again:

      The Garberville 1101 circuit provides electric service to approximately 1,239 customers in Southern Humboldt and Northern Mendocino Counties through 170 circuit-miles of primarily overhead conductor. This circuit also serves customers located in the CPUC High Fire Threat District - Tier 2 (Elevated Risk). The Garberville 1101 circuit is comprised of three main branches. The eastern branch serves approximately 272 customers through a 22 circuit-mile line section that travels through remote, mountainous terrain including zones with intermediate and heavy snow loading. The western branch serves approximately 171 customers through a 12 circuit-mile line section that traverses through coastal mountains to the community of Whitethorn. The southern branch serves approximately 745 customers through a 28 circuit-mile line section that follows the Hwy 101 corridor between Garberville and Leggett. The southern branch also runs along the South Fork of the Eel River and crosses several State Parks including Richardson's Grove, Smith Redwoods, and Standish Hickey Recreation Area. The major factors driving the Garberville 1101 reliability performance are the mountainous service territory with increased vegetation caused outage risks, overhead conductor exposure, and minimal ties to adjacent circuits for outage restoration support.
   iv. An explanation of what is being done to improve the circuit's future performance:

This circuit was part of the 2012 Targeted Circuit program. Specifically, the 2012 targeted circuit project upgraded 700 feet of overhead conductor, installed two overhead switches, and performed miscellaneous reliability work like pole reframing and self-protecting transformer replacement. An additional 4,400 feet of mainline conductor was successfully replaced in 2016 as part of the deteriorated conductor program.

v. A quantitative description of the utility's expectation for that circuit's future performance:

Incremental reliability improvement is anticipated after completion of the overhead reconductor work in 2016. PG&E has not identified any additional cost effective reliability improvements at this time and does not anticipate a significant change in the performance of this circuit except for changes due to the weather. PG&E will continue to explore cost effective reliability improvement opportunities such as installing additional remotely operable devices, replacing traditional fuses with single phase reclosing devices (TripSavers/FuseSavers), and performing tree trimming in targeted line sections. This includes exploring cost effective reliability improvement opportunities to minimize wildfire ignition risks in the Tier 2 High Fire Threat District.

2. GARBERVILLE 1102

i. An explanation of why it was ranked as a "deficient" circuit:

- Three-year (2013-2015) average AIFI score of 2.62 and AIDI score of 546
- Three-year (2014-2016) average AIFI score of 3.34 and AIDI score of 726
- Three-year (2015-2017) average AIFI score of 4.41 and AIDI score of 970

ii. A historical record of the metric:

- AIFI 2013 = 1.70
- AIFI 2014 = 3.50
- AIFI 2015 = 2.66
- AIFI 2016 = 3.87
- AIFI 2017 = 6.43

- AIDI 2013 = 192
- AIDI 2014 = 936
- AIDI 2015 = 510
- AIDI 2016 = 732
- AIDI 2017 = 1,665

iii. An explanation of why it was on the deficiency list again:

The Garberville 1102 circuit provides electric service to approximately 1,239 customers in Humboldt County through 157 circuit-miles of primarily overhead conductor. This circuit also serves customers located in the CPUC High Fire Threat District - Tier 2

(Elevated Risk). The primary mainline section of Garberville 1102 circuit travels through a 50 mile stretch of mountainous terrain along the northern coast. The primary mainline section also crosses an area known in the outdoor/hiking community as “The Lost Coast” and portions of the Humboldt Redwoods State Park. The primarily mainline section splits near the town of Briceland, approximately 10 circuit miles northwest of Garberville. The north branch extends 37 miles to Petrolia while the south branch extends 14 miles to the community of Whitethorn. The major factors driving the Garberville 1102 reliability performance are the mountainous service territory with increased vegetation caused outage risks, overhead conductor exposure, and minimal ties to adjacent circuits for outage restoration support. A 15% and 32% contribution to the 2017 AIFI and AIDI performance respectively was driven by a single vegetation caused outage that resulted in a wire down occurrence and a broken pole.

iv. An explanation of what is being done to improve the circuit's future performance:

This circuit was part of the 2011 Targeted Circuit program. Specifically, the 2011 targeted circuit project installed twelve fuses, three reclosers and performed miscellaneous reliability improvement work like pole reframing and self-protecting transformer replacement. A 2013 reconductor project successfully replaced over one mile of overhead conductor with a larger conductor. A reliability improvement project to allow a temporary generator to be interconnected at the town of Petrolia was successfully completed in 2018. This project was part of a pilot program to minimize outage restoration time.

v. A quantitative description of the utility's expectation for that circuit's future performance:

Although additional reliability improvement is anticipated after completion of the 2018 distribution generation interconnection project, forecasting reliability benefits is difficult to quantify for this pilot program. PG&E will continue to explore cost effective reliability improvement opportunities such as installing additional remotely operable devices, replacing traditional fuses with single phase reclosing devices (TripSavers/FuseSavers), or performing tree trimming in targeted line sections. This includes exploring cost effective reliability improvement opportunities to minimize wildfire ignition risks in the Tier 2 High Fire Threat District.

3. HOOPA 1101

i. An explanation of why it was ranked as a "deficient" circuit:

- Three-year (2013-2015) average AIDI score of 758
- Three-year (2014-2016) average AIDI score of 828
- Three-year (2015-2017) average AIDI score of 907

ii. A historical record of the metric:

- AIDI 2013 = 894
- AIDI 2014 = 222

- AIDI 2015 = 1,152
- AIDI 2016 = 1,105
- AIDI 2017 = 459

iii. An explanation of why it was on the deficiency list again:

The Hoopa 1101 circuit provides electric service to approximately 1,985 customers in Humboldt County through 150 circuit-miles of primarily overhead conductor. This circuit also serves customers located in the CPUC High Fire Threat District - Tier 2 (Elevated Risk). The Hoopa 1101 circuit is comprised of two main branches. The eastern branch serves approximately 522 customers through a 24 circuit-mile line section that traverses through remote mountainous terrain including the Six Rivers and Klamath National Forests. The western branch is a 20 circuit-mile line section that runs along the Klamath River and follows the Hwy 169 corridor between the communities of Weitchpec and Johnsons. The major factors driving the Hoopa 1101 reliability performance are the mountainous service territory with increased vegetation caused outage risks, overhead conductor exposure, and minimal ties to adjacent circuits for outage restoration support.

iv. An explanation of what is being done to improve the circuit's future performance:

As of the date of this report, a Targeted Circuit project has not been identified for the Hoopa 1101 circuit. A reliability improvement project to allow a temporary generator to be interconnected on the eastern branch at Orleans was successfully completed in 2017. A second distribution generation interconnection project to support the circuit breaker zone is targeted for 2019-20 installation.

v. A quantitative description of the utility's expectation for that circuit's future performance:

Although reliability improvement is anticipated after completion of the 2017 distribution generation interconnection project, forecasting reliability benefits is difficult to quantify for this pilot program. PG&E will continue to explore cost effective reliability improvement opportunities such as installing additional remotely operable devices, replacing traditional fuses with single phase reclosing devices (TripSavers/FuseSavers), or performing tree trimming in targeted line sections. This includes exploring cost effective reliability improvement opportunities to minimize wildfire ignition risks in the Tier 2 High Fire Threat District.

4. CHALLENGE 1101

i. An explanation of why it was ranked as a "deficient" circuit:

- Three-year (2013-2015) average AIDI score of 791
- Three-year (2014-2016) average AIDI score of 1,017
- Three-year (2015-2017) average AIDI score of 766

ii. A historical record of the metric:

- AIDI 2013 = 337

- AIDI 2014 = 1,087
- AIDI 2015 = 942
- AIDI 2016 = 1,022
- AIDI 2017 = 331

iii. An explanation of why it was on the deficiency list again:

The Challenge 1101 circuit provides electric service to approximately 690 customers in Yuba, Butte and Plumas Counties through 51 circuit-miles of primarily overhead conductor. This circuit also serves customers located in the CPUC High Fire Threat District - Tier 3 (Extreme Risk). The Challenge 1101 circuit is comprised of one main branch that travels northeast through remote, mountainous terrain including the Plumas National Forest. The major factors driving the Challenge 1101 reliability performance are the mountainous service territory with increased vegetation caused outage risks, overhead conductor exposure, and minimal ties to adjacent circuits for outage restoration support. A 71% contribution of the 2016 AIDI performance was driven by a single vegetation caused outage resulting in wire down occurrences at multiple locations.

iv. An explanation of what is being done to improve the circuit's future performance:

This circuit was part of the 2013 Targeted Circuit program. Specifically, the 2013 targeted circuit project installed 13 fuses, 1 recloser, 2 switches, and performed miscellaneous reliability work like pole reframing and pole replacement. PG&E is also currently developing a new System Hardening Project with a 2020-21 completion timeframe.

v. A quantitative description of the utility's expectation for that circuit's future performance:

An 87% and 70% percent improvement in 2017 AIFI and AIDI reliability performance respectively were observed after the completion of the 2013 targeted circuit project compared to the three-year outage history from 2008-2010. Although reliability improvement is anticipated after completion of the 2020-21 system hardening project, forecasting expected reliability benefits have not yet been quantified for this new program.

5. ALLEGHANY 1101

i. An explanation of why it was ranked as a "deficient" circuit:

- Three-year (2013-2015) average AIDI score of 613
- Three-year (2014-2016) average AIDI score of 711
- Three-year (2015-2017) average AIDI score of 562

ii. A historical record of the metric:

- AIDI 2013 = 295
- AIDI 2014 = 1,340
- AIDI 2015 = 205
- AIDI 2016 = 590

- AIDI 2017 = 846

iii. An explanation of why it was on the deficiency list again:

The Alleghany 1101 circuit provides electric service to approximately 1,074 customers in Sierra County through 81 circuit-miles of primarily overhead conductor. This circuit also serves customers located in the CPUC High Fire Threat District - Tier 3 (Extreme Risk). The Alleghany 1101 circuit is comprised of about 45 miles of mainline with various branches that travel through a mix of rural highway and cross country access. Its most northern branch travels through mountainous terrain including the Plumas National Forest. The major factors driving the Alleghany 1101 reliability performance are the remote service territory, overhead conductor exposure, and minimal ties to adjacent circuits for outage restoration support. In a specific instance, 2014 performance was driven by two outages that resulted in over one million customer minutes. Restoration in those outages was delayed due to severe weather and its remote location.

iv. An explanation of what is being done to improve the circuit's future performance:

This circuit was part of PG&E’s 2013 Targeted Circuit program. Specifically, the 2013 targeted circuit project replaced 2,700 feet of overhead conductor with larger wire to be more resilient to snow loading conditions. This project also upgraded 2 reclosers to provide remote operation capability. A new reliability improvement project was originally initiated to be part of the 2019 Targeted Circuit program. This project will be repurposed to become a new System Hardening Project with a 2020-21 completion timeframe.

v. A quantitative description of the utility's expectation for that circuit's future performance:

A 17% and 1% percent improvement in 2017 AIFI and AIDI reliability performance respectively was observed after the completion of the 2013 targeted circuit project compared to the three year outage history from 2008-2010. Although reliability improvement is anticipated after completion of the 2020-21 system hardening project, forecasting expected reliability benefits have not yet been quantified for this new program.

6. WILLOW CREEK 1103

i. An explanation of why it was ranked as a "deficient" circuit:

- Three-year (2013-2015) average AIDI score of 628
- Three-year (2014-2016) average AIDI score of 558
- Three-year (2015-2017) average AIDI score of 807

ii. A historical record of the metric:

- AIDI 2013 = 512
- AIDI 2014 = 797
- AIDI 2015 = 576
- AIDI 2016 = 303
- AIDI 2017 = 1,540

iii. An explanation of why it was on the deficiency list again:

The Willow Creek 1103 circuit provides electric service to approximately 1,529 customers in Humboldt and Trinity Counties through 92 circuit-miles of primarily overhead conductor. This circuit also serves customers located in the CPUC High Fire Threat District - Tier 2 (Elevated Risk) and Tier 3 (Extreme Risk). The Willow Creek 1103 circuit is comprised of two main branches that travel south and southeast through remote, mountainous terrain including the Six Rivers and Trinity National Forests. The major factors driving the Willow Creek 1103 reliability performance are the mountainous service territory with increased vegetation caused outage risks, overhead conductor exposure, and minimal ties to adjacent circuits for outage restoration support. A 63% contribution of the 2017 AIDI performance was driven by a single vegetation caused outage that resulted in a wire down occurrence.

iv. An explanation of what is being done to improve the circuit's future performance:

This circuit was part of the 2014 Targeted Circuit program. Specifically, the 2014 targeted circuit project replaced over 900 feet of conductor, installed 5 fuses, 6 switches, and performed miscellaneous reliability work like pole reframing and pole replacement. PG&E is also currently developing a new System Hardening Project with a 2020-21 completion timeframe.

v. A quantitative description of the utility's expectation for that circuit's future performance:

Although reliability improvement is anticipated after completion of the 2020-21 system hardening project, forecasting expected reliability benefits have not yet been quantified for this new program.

7. OTTER 1102

i. An explanation of why it was ranked as a "deficient" circuit:

- Three-year (2013-2015) average AIFI score of 2.27 and AIDI score of 853
- Three-year (2014-2016) average AIFI score of 4.29 and AIDI score of 1,224
- Three-year (2015-2017) average AIFI score of 3.06 and AIDI score of 687

ii. A historical record of the metric:

- AIFI 2013 = 0
- AIFI 2014 = 5.54
- AIFI 2015 = 1.44
- AIFI 2016 = 5.90
- AIFI 2017 = 1.84

- AIDI 2013 = 0
- AIDI 2014 = 1,714

- AIDI 2015 = 844
- AIDI 2016 = 1,110
- AIDI 2017 = 103

iii. An explanation of why it was on the deficiency list again:

The Otter 1102 circuit provides electric service to approximately 530 customers in Monterey County through 66 circuit-miles of primarily overhead conductor. This circuit also serves customers located in the CPUC High Fire Threat District - Tier 2 (Elevated Risk). The primary mainline section of Otter 1102 circuit travels south along Central California’s coastline through a 26 mile stretch of mountainous terrain including Andrew Molera and Pfeiffer Big Sur State Parks. The major factors driving the Otter 1102 reliability performance are the mountainous service territory with increased vegetation caused outage risks, overhead conductor exposure with elevated corrosion conditions, and minimal ties to adjacent circuits for outage restoration support.

iv. An explanation of what is being done to improve the circuit's future performance:

This circuit was part of the 2014 Targeted Circuit program. Specifically, the targeted circuit project replaced 1,000 feet of overhead conductor, installed seven fuses, replaced 7 poles, reframed 14 cross arms, and installed 9 animal guards. An additional 19,100 feet of reconductor work has been completed from 2015-2016 with another 10,100 feet of reconductor work is planned for 2018.

v. A quantitative description of the utility's expectation for that circuit's future performance:

A 47% and 94% percent improvement in 2017 AIFI and AIDI reliability performance respectively were observed after the completion of the 2014 targeted circuit project compared to the three-year outage history from 2009-2011. Additional incremental reliability improvement is anticipated after completion of the overhead reconductor work in 2018. PG&E will continue to explore cost effective reliability improvement opportunities such as installing additional remotely operable devices, replacing traditional fuses with single phase reclosing devices (TripSavers/FuseSavers), or performing tree trimming in targeted line sections. This includes exploring cost effective reliability improvement opportunities to minimize wildfire ignition risks in the Tier 2 High Fire Threat District.

8. EL DORADO PH 2101

i. An explanation of why it was ranked as a "deficient" circuit:

- Three-year (2013-2015) average AIFI score of 3.18
- Three-year (2014-2016) average AIFI score of 3.61
- Three-year (2015-2017) average AIFI score of 3.55

ii. A historical record of the metric:

- AIFI 2013 = 1.98
- AIFI 2014 = 3.09

- AIFI 2015 = 4.29
- AIFI 2016 = 3.36
- AIFI 2017 = 3.00

iii. An explanation of why it was on the deficiency list again:

The El Dorado PH 2101 circuit provides electric service to approximately 4,611 customers in Humboldt County through 161 circuit-miles of primarily overhead conductor. This circuit also serves customers located in the CPUC High Fire Threat District - Tier 2 (Elevated Risk) and Tier 3 (Extreme Risk). The primary mainline section of El Dorado PH 2101 circuit travels east along Highway 50 through a 30 mile stretch of mountainous terrain including El Dorado National Forest. The primary mainline section splits near the town of Polluck Pines, approximately 4 miles southeast of El Dorado PH. The southwest branch extends 8 miles to Pleasant Valley while the south branch extends 10 miles to the community of Grizzly Flat. The major factors driving the El Dorado PH 2101 reliability performance are the mountainous service territory with increased vegetation caused outage risks, overhead conductor exposure, and minimal ties to adjacent circuits for outage restoration support.

iv. An explanation of what is being done to improve the circuit's future performance:

This circuit was part of the 2011 Targeted Circuit program. Specifically, the targeted circuit project installed 2 fuses and reframed 13 poles. As part of PG&E's base reliability work, a project was initiated to install additional line reclosers, add remote operating capabilities to existing line reclosers, replace overhead conductor to increase capacity, and install automated self-healing FLISR technology with a 2018-19 completion timeframe. PG&E is also currently developing a new System Hardening Project with a 2020-21 completion timeframe.

v. A quantitative description of the utility's expectation for that circuit's future performance:

A 15% percent improvement in 2017 AIFI reliability performance was observed after the completion of the 2011 targeted circuit project compared to the three-year outage history from 2006-2008. Based on results shown by other similar circuits with automated self-healing FLISR technology, PG&E anticipates that the work proposed will improve reliability performance by 15 percent or more. Although reliability improvement is anticipated after completion of the 2020-21 system hardening project, forecasting expected reliability benefits have not yet been quantified for this new program.

9. TULARE LAKE 2108

i. An explanation of why it was ranked as a "deficient" circuit:

- Three-year (2013-2015) average AIDI score of 582
- Three-year (2014-2016) average AIDI score of 823
- Three-years (2015-2017) average AIDI score of 659

ii. A historical record of the metric:

- AIDI 2013 = 0
- AIDI 2014 = 1506
- AIDI 2015 = 712
- AIDI 2016 = 473
- AIDI 2017 = 789

iii. An explanation of why it was on the deficiency list again:

The Tulare Lake 2108 circuit provides electric service to approximately 107 customers in Kings County through 57 circuit-miles of primarily overhead conductor. The Tulare 2108 circuit is comprised of several branches that supports a predominately agriculture community. The major factors driving the Tulare Lake 2108 reliability performance are equipment failure and animal caused outages.

iv. An explanation of what is being done to improve the circuit's future performance:

This circuit has been identified to be part of the 2021 or beyond Targeted Circuit program. Although the scope of work has not yet been developed, the typical installation of mainline protective devices and performing miscellaneous reliability improvement work is anticipated.

v. A quantitative description of the utility's expectation for that circuit's future performance:

Based on results shown by other similar circuits after targeted circuit work, PG&E anticipates that the work proposed will improve reliability performance by 25 percent or more.

10. ALPINE 1102

i. An explanation of why it was ranked as a "deficient" circuit:

- Three-year (2013-2015) average AIFI score of 2.66 and AIDI score of 618
- Three-year (2014-2016) average AIFI score of 4.33 and AIDI score of 541
- Three-year (2015-2017) average AIFI score of 4.00 and AIDI score of 588

ii. A historical record of the metric:

- AIFI 2013 = 1.00
- AIFI 2014 = 3.00
- AIFI 2015 = 5.99
- AIFI 2016 = 4.00
- AIFI 2017 = 2.00

- AIDI 2013 = 455
- AIDI 2014 = 416
- AIDI 2015 = 1,019
- AIDI 2016 = 187

- AIDI 2017 = 557

iii. An explanation of why it was on the deficiency list again:

The Alpine 1102 circuit provides electric service to approximately 309 customers in Alpine County through 3 circuit-miles of entirely underground conductor. Specifically, the Alpine 1102 circuit supports the Bear Valley community. The Salt Springs 2101 circuit provides the primary service to the Alpine 1102 circuit through 21/12 kV voltage step down transformers. The major factor driving the Alpine 1102 reliability performance is the reliability performance of the Salt Springs 2101 circuit.

iv. An explanation of what is being done to improve the circuit's future performance:

The Salt Springs 2101 has been identified to be part of the 2021 or beyond Targeted Circuit program. It is anticipated that the improvement work on the Salt Springs 2101 will improve the Alpine 1102 reliability performance.

v. A quantitative description of the utility's expectation for that circuit's future performance:

Based on results shown by other similar Targeted Circuit projects, PG&E anticipates that the work proposed will improve reliability performance by 25 percent or more.

11. POSO MOUNTAIN 2101

i. An explanation of why it was ranked as a "deficient" circuit:

- Three-year (2013-2015) average AIDI score of 590
- Three-year (2014-2016) average AIDI score of 1078
- Three-year (2015-2017) average AIDI score of 1088

ii. A historical record of the metric:

- AIDI 2013 = 17
- AIDI 2014 = 245
- AIDI 2015 = 1691
- AIDI 2016 = 1379
- AIDI 2017 = 192

iii. An explanation of why it was on the deficiency list again:

The Poso Mountain 2101 circuit provides electric service to approximately 146 customers in Kern County through 61 circuit-miles of entirely overhead conductor. This circuit also serves customers located in the CPUC High Fire Threat District - Tier 2 (Elevated Risk). The Poso Mountain 2101 circuit is comprised of several branches that support a predominately unincorporated community north of Bakersfield. The major factors driving the Poso Mountain 2101 reliability performance are overhead conductor exposure, animal caused outages, and minimal ties to adjacent circuits for outage restoration support.

iv. An explanation of what is being done to improve the circuit's future performance:

As of the date of this report, a Targeted Circuit project has not been identified for the Poso Mountain 2101 circuit. As part of PG&E's base reliability work, three failed reclosers were replaced and bird guard protection was installed in 2016.

v. A quantitative description of the utility's expectation for that circuit's future performance:

Reliability improvement was observed in 2017 after completion of the base reliability improvement work in 2016. PG&E will continue to explore cost effective reliability improvement opportunities such as installing additional remotely operable devices and replacing traditional fuses with single phase reclosing devices (TripSavers/FuseSavers). This includes exploring cost effective reliability improvement opportunities to minimize wildfire ignition risks in the Tier 2 High Fire Threat District.

12. Orick 1101

i. An explanation of why it was ranked as a "deficient" circuit:

- Three-year (2013-2015) average AIDI score of 502
- Three-year (2014-2016) average AIDI score of 657
- Three-year (2015-2017) average AIDI score of 1,142

ii. A historical record of the metric:

- AIDI 2013 = 0
- AIDI 2014 = 1,497
- AIDI 2015 = 0
- AIDI 2016 = 455
- AIDI 2017 = 2,992

iii. An explanation of why it was on the deficiency list again:

The Orick 1101 circuit provides electric service to approximately 90 customers in Humboldt County through 10 circuit-miles of primarily overhead conductor. The primary mainline section of the Orick 1101 circuit travels north along the Highway 101 corridor through a 5 mile stretch of mountainous terrain including Redwood National and State Parks. The major factors driving the Orick 1101 reliability performance are the mountainous service territory with increased vegetation caused outage risks, overhead conductor exposure, and minimal ties to adjacent circuits for outage restoration support. A 70% contribution of the 2017 AIDI performance was driven by a single vegetation caused outage that resulted in a wire down occurrence.

iv. An explanation of what is being done to improve the circuit's future performance:

As of the date of this report, a Targeted Circuit project has not been identified for the Orick 1101 circuit.

v. A quantitative description of the utility's expectation for that circuit's future performance:

PG&E has not identified any additional cost effective reliability improvements and does not anticipate a significant change in the performance of this circuit except for changes due to the weather. PG&E will continue to explore cost effective reliability improvement opportunities such as installing additional remotely operable devices, replacing traditional fuses with single phase reclosing devices (TripSavers/FuseSavers), and performing tree trimming in targeted line sections.

13. RISING RIVER 1101

i. An explanation of why it was ranked as a "deficient" circuit:
   - Three-year (2013-2015) average AIDI score of 821
   - Three-year (2014-2016) average AIDI score of 785
   - Three-year (2014-2016) average AIDI score of 493

ii. A historical record of the metric:
   - AIDI 2013 = 438
   - AIDI 2014 = 875
   - AIDI 2015 = 1,152
   - AIDI 2016 = 328
   - AIDI 2017 = 3

iii. An explanation of why it was on the deficiency list again:

   The Rising River 1101 circuit provides electric service to approximately 728 customers in Shasta County through 60 circuit-miles of primarily overhead conductor. This circuit also serves customers located in the CPUC High Fire Threat District - Tier 2 (Elevated Risk). The Rising River 1101 circuit is comprised of one main branch that travels south through remote, mountainous terrain including the Lassen National Forest. The major factors driving the Rising River 1101 reliability performance are the mountainous service territory with increased vegetation caused outage risks, overhead conductor exposure, and minimal ties to adjacent circuits for outage restoration support.

iv. An explanation of what is being done to improve the circuit's future performance:

   This circuit is part of the 2021 and beyond Targeted Circuit program. Specifically, the 2021 targeted circuit project proposes to install 17 fuses, 1 recloser, and 1 Trip Saver. Miscellaneous reliability work like pole reframing and fault indicator installation is also anticipated.

v. A quantitative description of the utility's expectation for that circuit's future performance:

   Based on results shown by other similar circuits after targeted circuit work, PG&E anticipates that the work proposed will improve reliability performance by 25 percent or more. PG&E will also explore cost effective reliability improvement opportunities to minimize wildfire ignition risks in the Tier 2 High Fire Threat District.

6. Top 10 major unplanned power outage events of 2017

Significant Outage Events Of 2017

Table below lists the ten largest outage events experienced during 2017. PG&E interprets this reporting requirement as the ten events (individual days or in some cases a group of consecutive days) with a significant number of customer interruptions in the system or a portion of the system. These events are listed in descending order of customer interruptions.

Table 162 - Ten Largest 2017 Outage Events

Rank	Description	Date	Number of Customers Affected *	Longest Customer Interruption (Hours)	# of People Used To Restore Service	CPUC Major Event?
1	A series of atmospheric river storm events impacted the territory with heavy rain and strong south winds. Extensive damage occurred on the Central Coast where Salinas Airport recorded a gust to 69 mph. This was caused by a rapidly intensifying area of low pressure, also known as 'bombogenesis'.	02/17/2017 – 02/22/2017	732,590	235	3,496 Total 3,186 PG&E 310 Mutual Assistance	Y (except Feb 19)
2	Another winter storm series comprised of three storms impacted the territory from 1/18 – 1/23 with heavy rain, mountain snow, and strong south winds.	1/18/2017 – 1/23/2017	653,502	170	3,274 Total 3,151 PG&E 123 Mutual Assistance	Y
3	A vigorous storm produced significant damage across the territory on 1/8/17 due to a combination of very heavy rain and strong south winds. The heavy rain resulted in flooding along rivers, creeks, and streams. A second strong winter storm impacted the territory 1/10/2017 to 1/11/2017.	1/8/2017 – 1/11/2017	560,246	450	3,357 Total 3,180 PG&E 177 Mutual Assistance	Y
4	A strong and dynamic winter storm impacted the territory 4/6 to 4/7 and produced significant outage activity. The storm was the most impactful April storm in the 22+ year PG&E outage record (back to 1995). This storm put the capstone on the wettest water year in PG&E's history.	4/6/2017 – 4/7/2017	249,024	328	1,945	Y
5	October wildfires	10/8/2017 – 10/9/2017	211,812	587	2,336 Total 2,125 PG&E 211 Mutual Assistance	Y
6	A winter storm brought heavy rain and gusty southerly winds through the northern two thirds of the service area, causing significant outage activity	2/7/2017	146,210	127	2,103	Y
7	An offshore wind event developed across the northern two thirds of the territory and produced wind gusts up to 45 mph across lower elevations. Multiple Red Flag Warnings were posted.	12/16/2017	112,218	59	1,385	Y
8	A winter storm moved in the territory and produced considerable outage activity due to rain, gusty south winds, and mountain snow	1/3/2017 – 1/4/2017	102,123	172	1,227	Y (except Jan 4)

9	This event was not weather related. Bad breaker at Larkin Sub in San Francisco.	4/21/2017	93,863	13	220	Y
10	A weather system moved into the territory from the Pacific and generated wind and rain-related outage activity	10/20/2017	70,839	101	499	Y

* Note: Values exclude planned outages

7. Summary List of Major Event Day (MED) per IEEE 1366

Major Event Day

IEEE Standard 1366 defines MED as follows:

IEEE Standard 1366-2003 uses a statistically-based method of identifying excludable events. Specifically, the IEEE standard provides for the exclusion of all outages occurring on any day where its SAIDI is greater than “TMED” where:

$$T_{MED} \equiv e^{\text{average over 5 yrs. of Ln (daily SAIDI) + 2.5 * STD DEV of 5 yrs. of Ln (daily SAIDI)}}$$

The IEEE 1366 Standard includes outage resulting from the failure of a single line transformer.

Table 163 – 2017 Major Event Day

Date	Description	Reason
1/3/2017	A winter storm moved in the territory and produced considerable outage activity due to rain, gusty south winds, and mountain snow	IEEE MED
1/8/2017 – 1/11/2017	A vigorous storm produced significant damage across the territory on 1/8/17 due to a combination of very heavy rain and strong south winds. The heavy rain resulted in flooding along rivers, creeks, and streams. A second strong winter storm impacted the territory 1/10/2017 to 1/11/2017.	IEEE MED
1/18/2017 – 1/23/2017	Another winter storm series comprised of three storms impacted the territory from 1/18 – 1/23 with heavy rain, mountain snow, and strong south winds.	IEEE MED
2/7/2017	A winter storm brought heavy rain and gusty southerly winds through the northern two thirds of the Service Area, causing significant outage activity	IEEE MED
2/9/2017	A winter storm brought moderate to heavy rain and gusty south winds to the northern half to two-thirds of the Service Area. The storm was the final wave in a storm series that occurred during the week.	IEEE MED
02/17/2017 – 02/18/2017	A series of atmospheric river storm events impacted the territory with heavy rain and strong south winds. Extensive damage occurred on the Central Coast where Salinas Airport recorded a gust to 69 mph. This was caused by a rapidly intensifying area of low pressure, also known as 'bombogenesis'.	IEEE MED
02/20/2017 – 02/22/2017	A series of atmospheric river storm events impacted the territory with heavy rain and strong south winds. Extensive damage occurred on the Central Coast where Salinas Airport recorded a gust to 69 mph. This was caused by a rapidly intensifying area of low pressure, also known as 'bombogenesis'.	IEEE MED
4/6/2017 – 4/7/2017	A strong and dynamic winter storm impacted the territory 4/6 to 4/7 and produced significant outage activity. The storm was the most impactful April storm in the 22+ year PG&E outage record (back to 1995). This storm put the capstone on the wettest water year in PG&E's history.	IEEE MED
4/21/2017	Failed breaker at Larkin Substation.	IEEE MED
6/18/2017	A heat wave developed that broke daily records at several locations across the territory. Coast and Bay Area locations topped out in the mid 90s to low 100s while interior spots reached 105-110 degrees. Overnight lows were also record-breaking only dropping into the upper 60s to low 80s.	IEEE MED
9/3/2017	A late season heat wave, responsible for all-time high temperature records being set in the days prior, continued with widespread maximums in the 90s to low 100s near the coast and Bay Area and 105-110+ across the interior. Isolated thunderstorms were also observed across the far south.	IEEE MED
9/11/2017	An upper-level low generated widespread thunderstorm activity that spread south to north through the day producing over 2100 lightning strikes across the southern two-thirds of the territory.	IEEE MED
10/8/2017 – 10/9/2017	October wildfires	IEEE MED
10/14/2017	October wildfires	IEEE MED
10/20/2017	A weather system moved into the territory from the Pacific and generated wind and rain-related outage activity	IEEE MED
12/4/2017	Building high pressure generated gusty northeast winds across the central portions of the territory, resulting in a fair amount of outage activity.	IEEE MED
12/16/2017	An offshore wind event developed across the northern two thirds of the territory and produced wind gusts up to 45 mph across lower elevations. Multiple Red Flag Warnings were posted.	IEEE MED

*MED is defined as Major Events Day

7.1 Major Event Day (MED) Discussions:

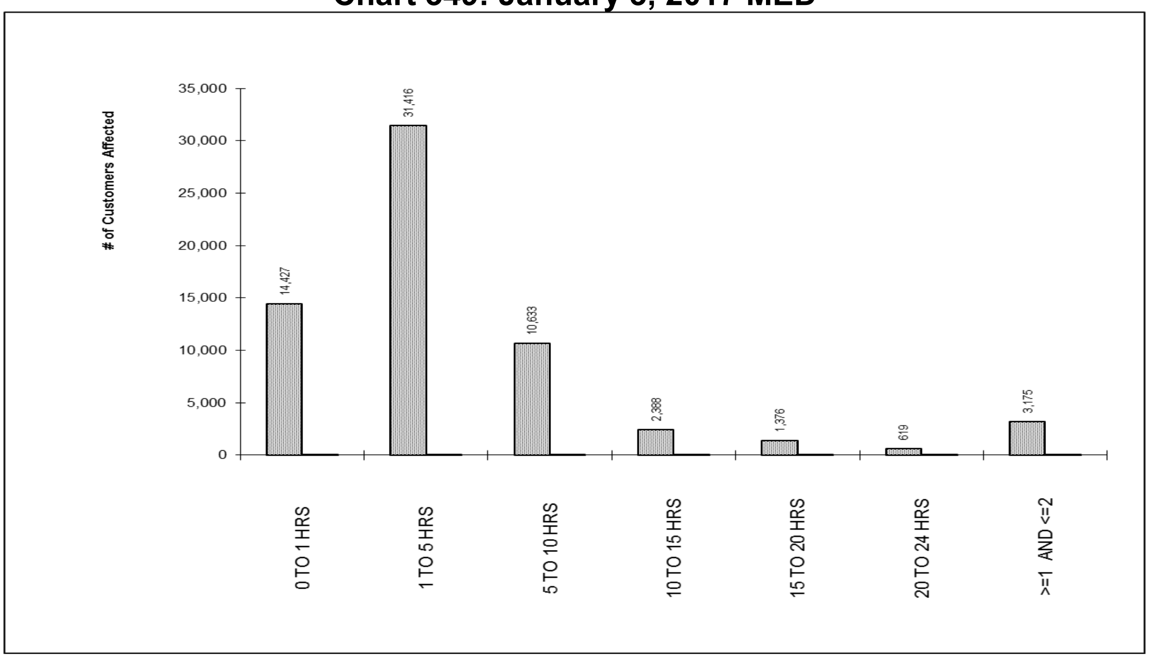
January 3, 2017 Major Event Day

Table 164 below indicates the number of customers without service at periodic intervals for this event (01/03/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 164 – January 3

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	14,427	21.84%
1 TO 5 HRS	31,416	69.41%
5 TO 10 HRS	10,633	85.50%
10 TO 15 HRS	2,388	89.12%
15 TO 20 HRS	1,376	91.20%
20 TO 24 HRS	619	92.14%
>=1 AND <=2	3,175	96.95%
>=2 AND <=3	1,061	98.55%
>=3 AND <=4	339	99.07%
>=4 AND <=5	287	99.50%
>=5 AND <=6	228	99.85%
>=6 AND <=7	100	100.00%
> 7	1	100.00%
Total	66,050	

Chart 349: January 3, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

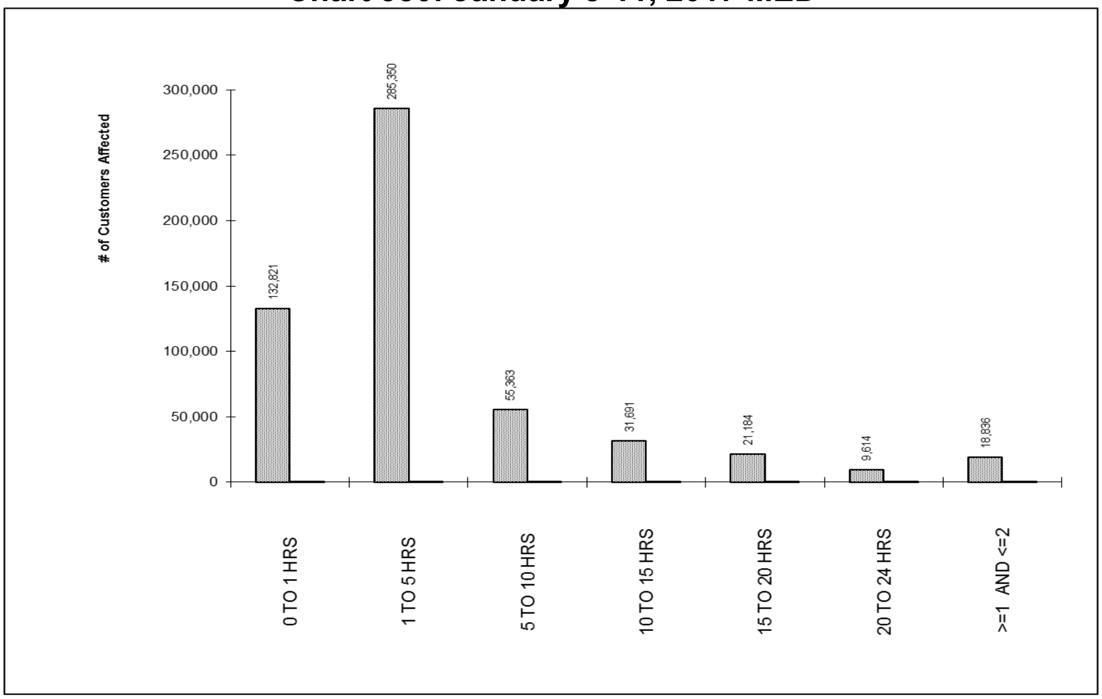
January 8-11, 2017 Major Event Days

Table 165 below indicates the number of customers without service at periodic intervals for this event (01/8/2017-1/11/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 165 – January 8-11

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	132,821	23.63%
1 TO 5 HRS	285,350	74.41%
5 TO 10 HRS	55,363	84.26%
10 TO 15 HRS	31,691	89.90%
15 TO 20 HRS	21,184	93.67%
20 TO 24 HRS	9,614	95.38%
>=1 AND <=2	18,836	98.73%
>=2 AND <=3	4,238	99.49%
>=3 AND <=4	1,734	99.79%
>=4 AND <=5	782	99.93%
>=5 AND <=6	269	99.98%
>=6 AND <=7	100	100.00%
> 7	6	100.00%
Total	561,988	

Chart 350: January 8-11, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

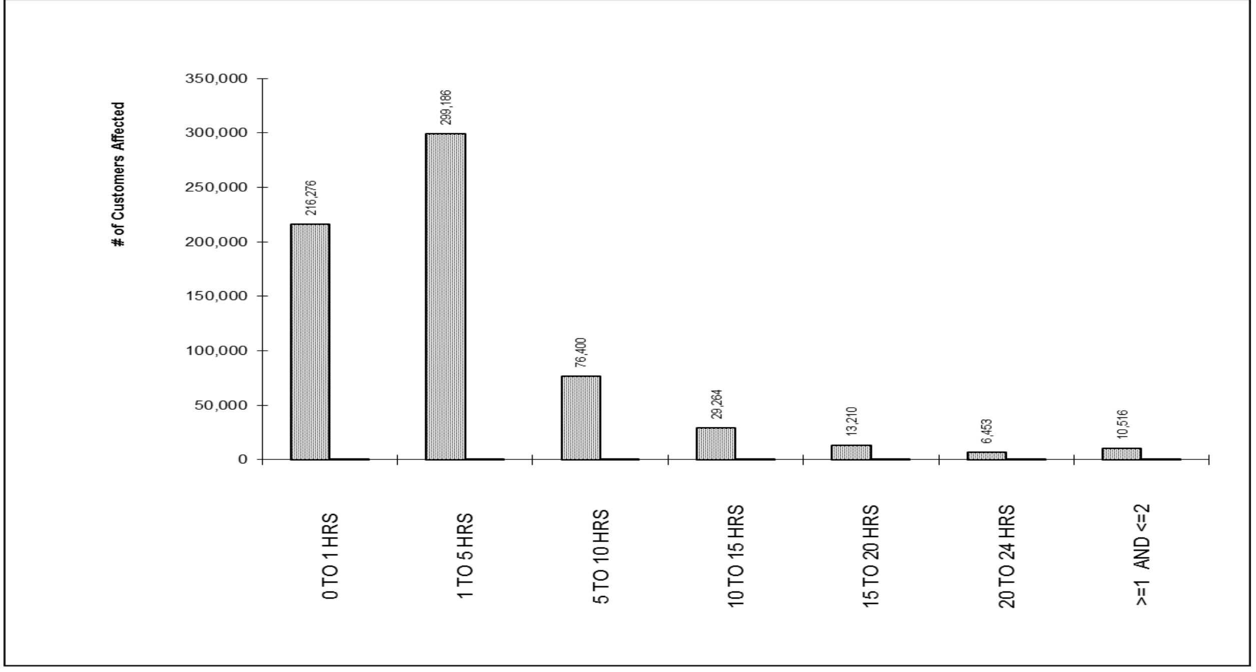
January 18-23, 2017 Major Event Days

Table 166 below indicates the number of customers without service at periodic intervals for this event (1/18/2017 – 1/23/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 166 – January 18-23

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	216,276	32.87%
1 TO 5 HRS	299,186	78.34%
5 TO 10 HRS	76,400	89.95%
10 TO 15 HRS	29,264	94.40%
15 TO 20 HRS	13,210	96.41%
20 TO 24 HRS	6,453	97.39%
>=1 AND <=2	10,516	98.99%
>=2 AND <=3	3,389	99.50%
>=3 AND <=4	1,837	99.78%
>=4 AND <=5	913	99.92%
>=5 AND <=6	277	99.96%
>=6 AND <=7	207	100.00%
> 7	28	100.00%
Total	657,956	

Chart 351: January 18-23, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

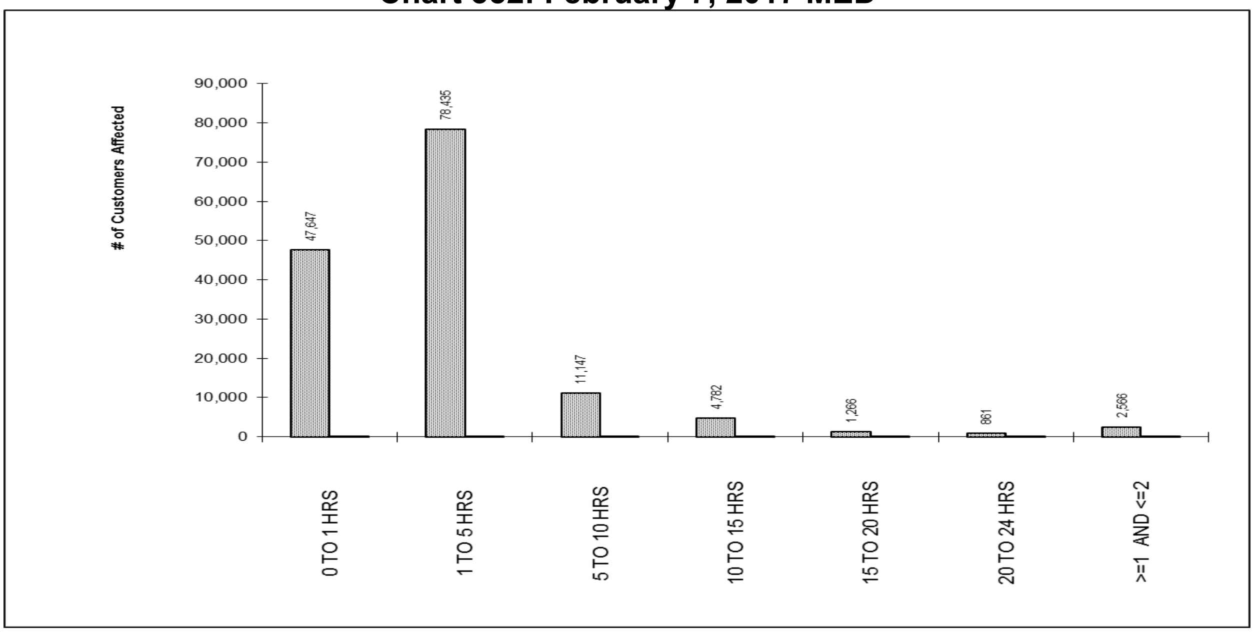
February 7, 2017 Major Event Day

Table 167 below indicates the number of customers without service at periodic intervals for this event (2/7/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 167 – February 7

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	47,647	32.34%
1 TO 5 HRS	78,435	85.57%
5 TO 10 HRS	11,147	93.14%
10 TO 15 HRS	4,782	96.38%
15 TO 20 HRS	1,266	97.24%
20 TO 24 HRS	861	97.83%
>=1 AND <=2	2,566	99.57%
>=2 AND <=3	400	99.84%
>=3 AND <=4	217	99.99%
>=4 AND <=5	4	99.99%
>=5 AND <=6	17	100.00%

Chart 352: February 7, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

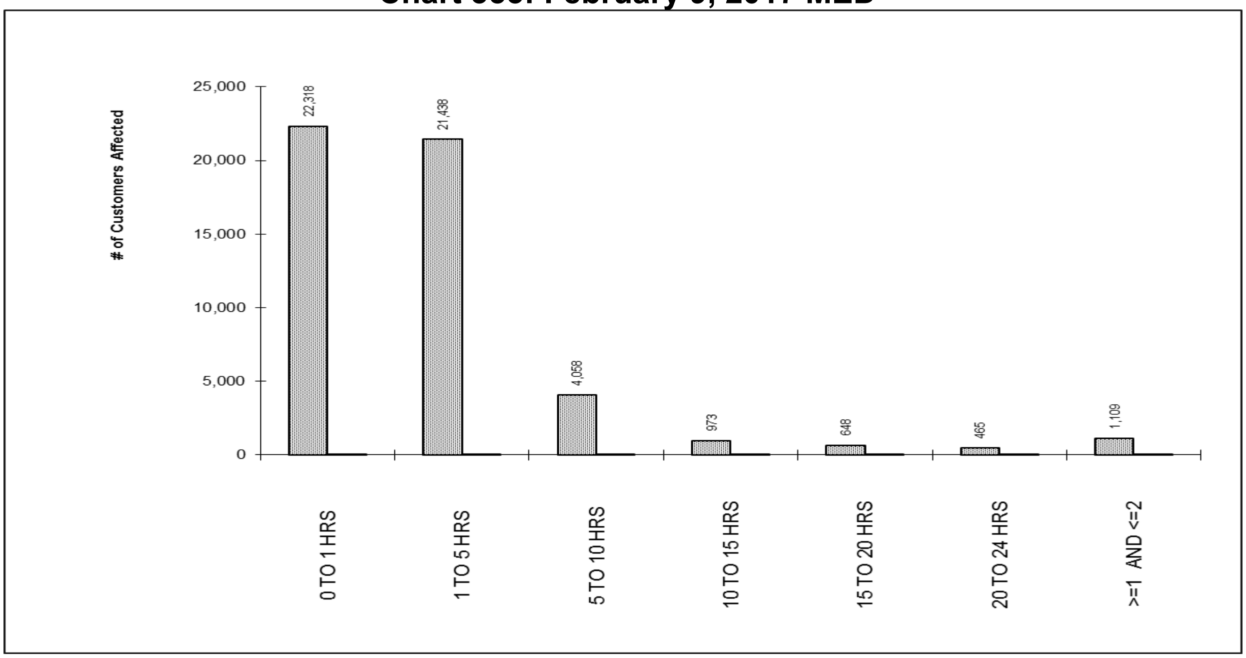
February 9, 2017 Major Event Day

Table 168 below indicates the number of customers without service at periodic intervals for this event (2/9/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 168 – February 9

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	22,318	43.65%
1 TO 5 HRS	21,438	85.58%
5 TO 10 HRS	4,058	93.52%
10 TO 15 HRS	973	95.42%
15 TO 20 HRS	648	96.69%
20 TO 24 HRS	465	97.60%
>=1 AND <=2	1,109	99.77%
>=2 AND <=3	8	99.78%
>=5 AND <=6	87	99.96%
>=6 AND <=7	7	99.97%
> 7	16	100.00%

Chart 353: February 9, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

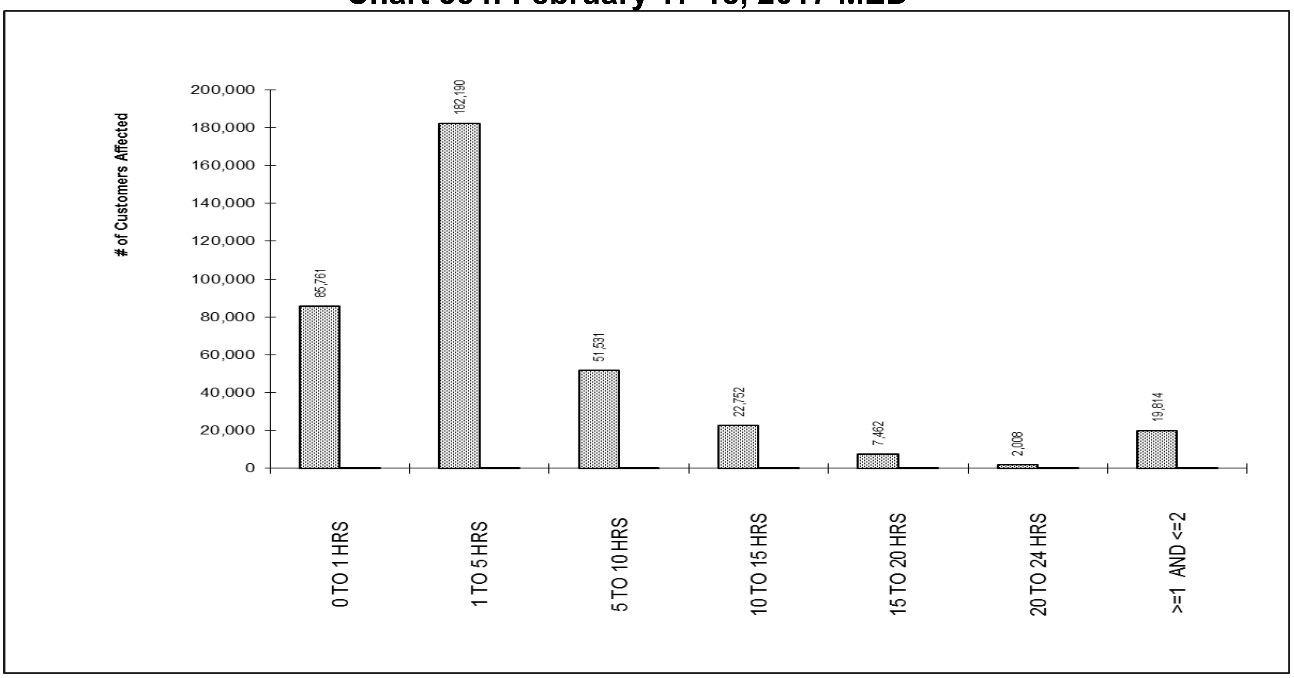
February 17-18, 2017 Major Event Days

Table 169 below indicates the number of customers without service at periodic intervals for this event (2/17/2017 – 2/18/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 169 – February 17-18

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	85,761	22.17%
1 TO 5 HRS	182,190	69.28%
5 TO 10 HRS	51,531	82.60%
10 TO 15 HRS	22,752	88.49%
15 TO 20 HRS	7,462	90.42%
20 TO 24 HRS	2,008	90.94%
>=1 AND <=2	19,814	96.06%
>=2 AND <=3	7,361	97.96%
>=3 AND <=4	3,798	98.94%
>=4 AND <=5	3,091	99.74%
>=5 AND <=6	992	100.00%
>=6 AND <=7	217	100.06%
> 7	13	100.06%
Total	386,760	

Chart 354: February 17-18, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

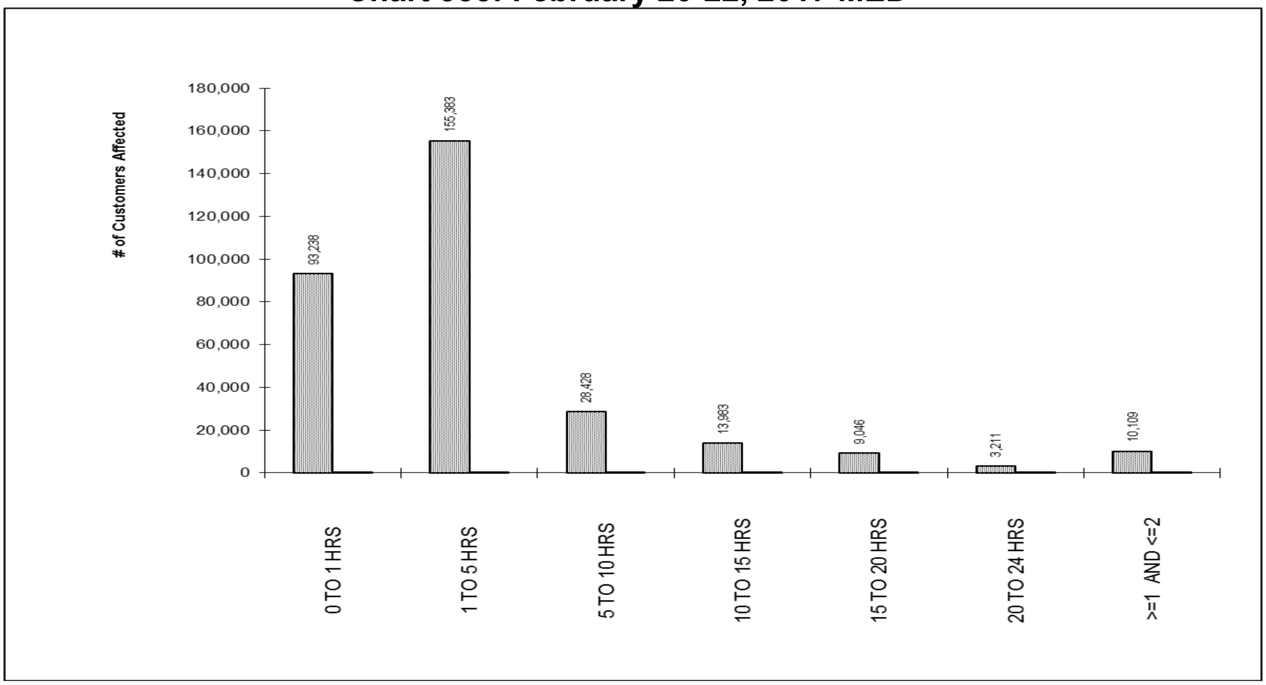
February 20-22, 2017 Major Event Days

Table 170 below indicates the number of customers without service at periodic intervals for this event (2/20/2017 – 2/22/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 170 – February 20-22

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	93,238	29.15%
1 TO 5 HRS	155,383	77.74%
5 TO 10 HRS	28,428	86.63%
10 TO 15 HRS	13,983	91.00%
15 TO 20 HRS	9,046	93.83%
20 TO 24 HRS	3,211	94.83%
>=1 AND <=2	10,109	97.99%
>=2 AND <=3	3,590	99.11%
>=3 AND <=4	2,260	99.82%
>=4 AND <=5	568	100.00%
>=5 AND <=6	8	100.00%
>=6 AND <=7	8	100.00%
> 7	128	100.04%
Total	319,824	

Chart 355: February 20-22, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

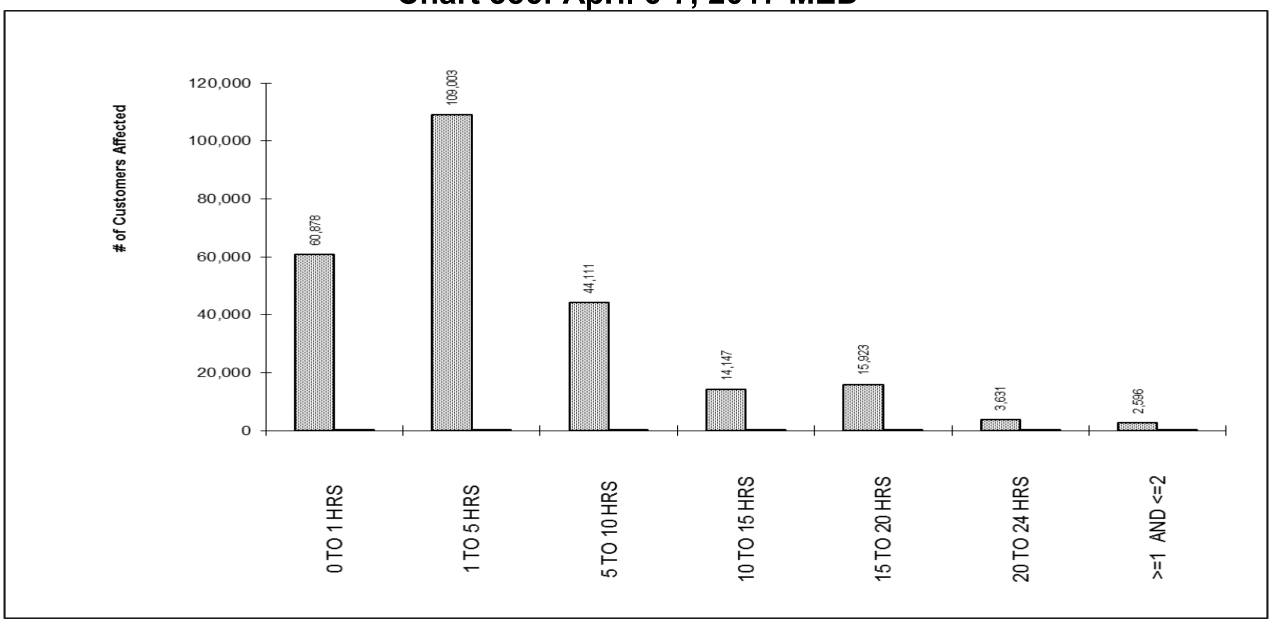
April 6-7, 2017 Major Event Days

Table 171 below indicates the number of customers without service at periodic intervals for this event (4/6/2017 – 4/7/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 171 – April 6-7

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	60,878	24.32%
1 TO 5 HRS	109,003	67.85%
5 TO 10 HRS	44,111	85.47%
10 TO 15 HRS	14,147	91.12%
15 TO 20 HRS	15,923	97.48%
20 TO 24 HRS	3,631	98.93%
>=1 AND <=2	2,596	99.97%
>=2 AND <=3	71	100.00%
>=3 AND <=4	5	100.00%
> 7	5	100.00%
Total	250,370	

Chart 356: April 6-7, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

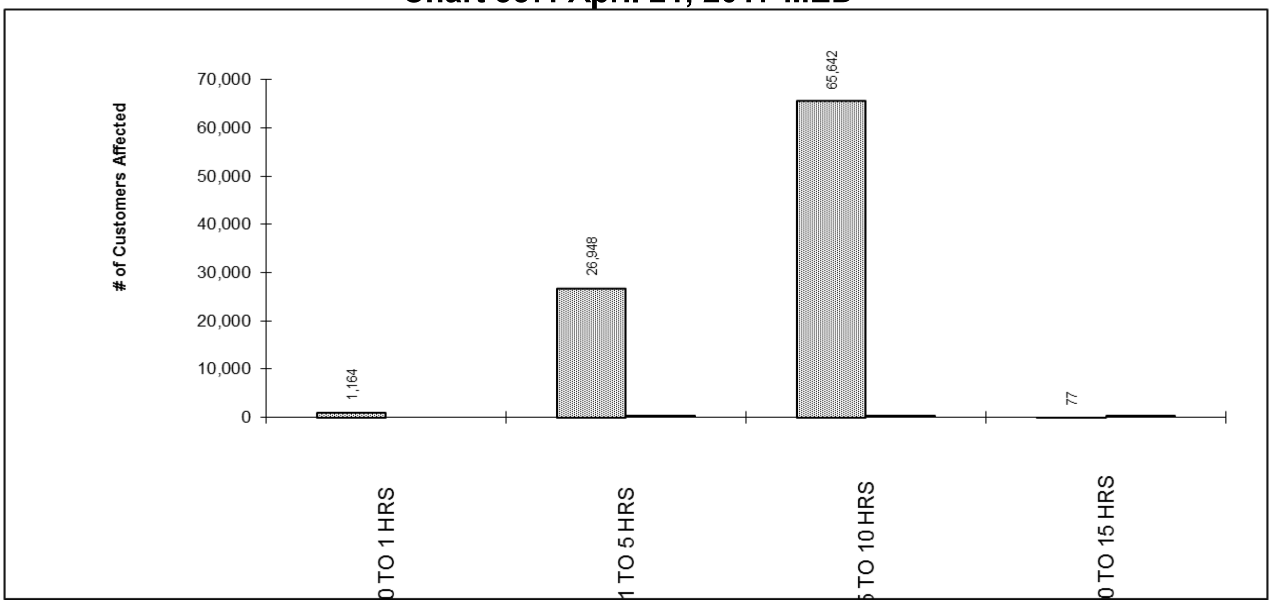
April 21, 2017 Major Event Day

Table 172 below indicates the number of customers without service at periodic intervals for this event (4/21/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 172 – April 21

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	1,164	1.24%
1 TO 5 HRS	26,948	29.96%
5 TO 10 HRS	65,642	99.92%
10 TO 15 HRS	77	100.00%
Total	93,831	

Chart 357: April 21, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

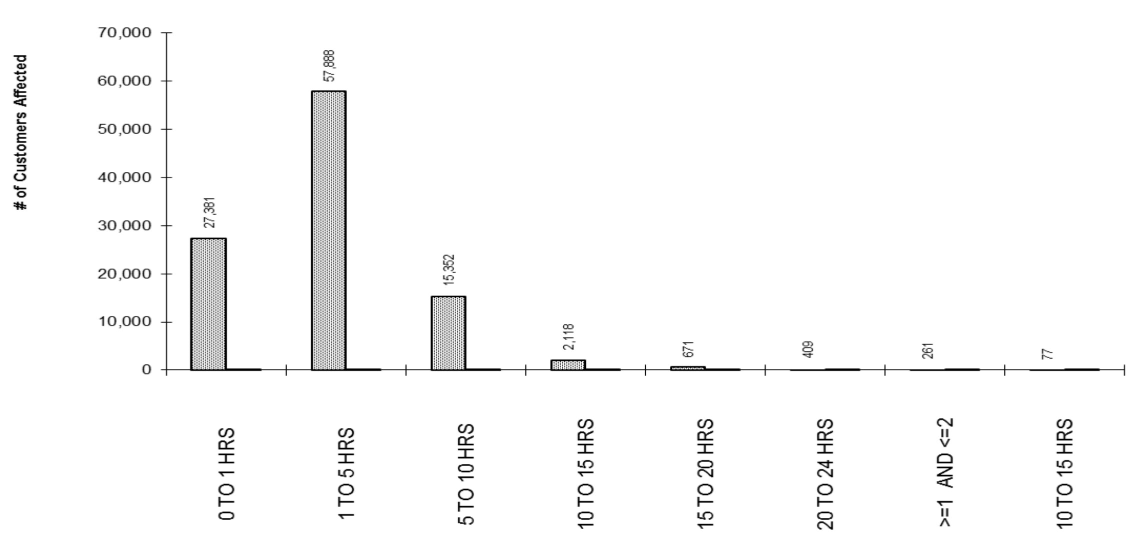
June 18, 2017 Major Event Day

Table 173 below indicates the number of customers without service at periodic intervals for this event (6/18/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 173 – June 18

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	27,381	26.29%
1 TO 5 HRS	57,888	81.87%
5 TO 10 HRS	15,352	96.61%
10 TO 15 HRS	2,118	98.64%
15 TO 20 HRS	671	99.28%
20 TO 24 HRS	409	99.68%
>=1 AND <=2	261	99.93%
10 TO 15 HRS	77	100.00%
Total	104,157	

Chart 358: June 18, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

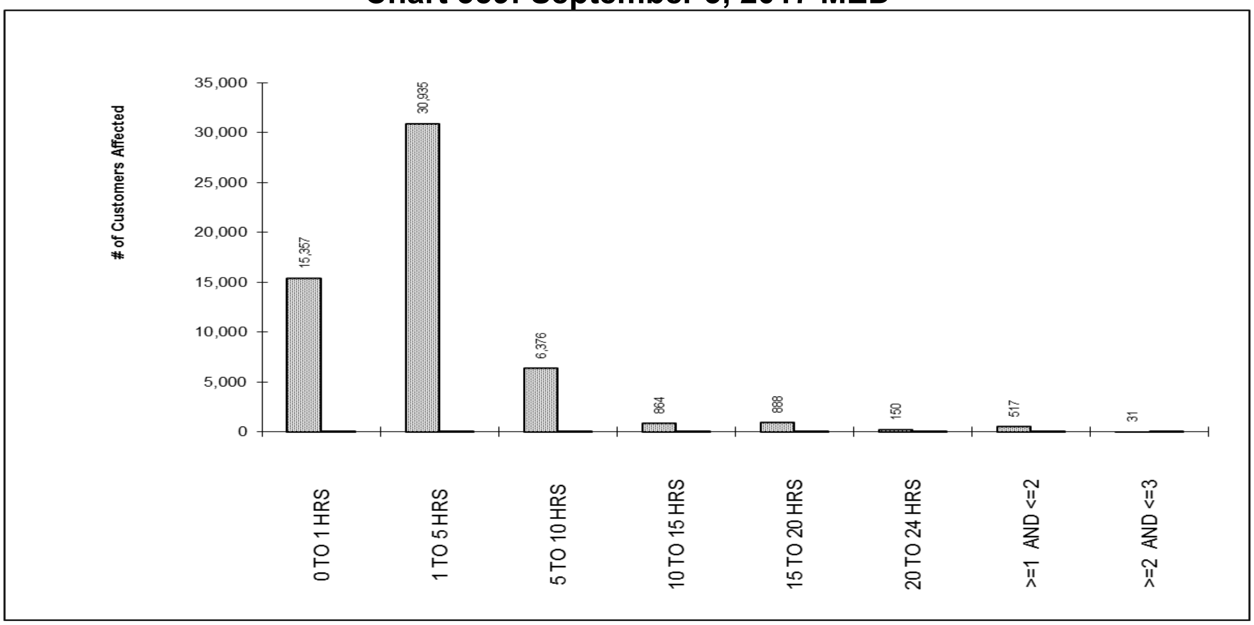
September 3, 2017 Major Event Day

Table 174 below indicates the number of customers without service at periodic intervals for this event (9/3/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 174 – September 3

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	15,357	27.86%
1 TO 5 HRS	30,935	83.99%
5 TO 10 HRS	6,376	95.55%
10 TO 15 HRS	864	97.12%
15 TO 20 HRS	888	98.73%
20 TO 24 HRS	150	99.01%
>=1 AND <=2	517	99.94%
>=2 AND <=3	31	100.00%
>=3 AND <=4	240	
Total	55,118	

Chart 359: September 3, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

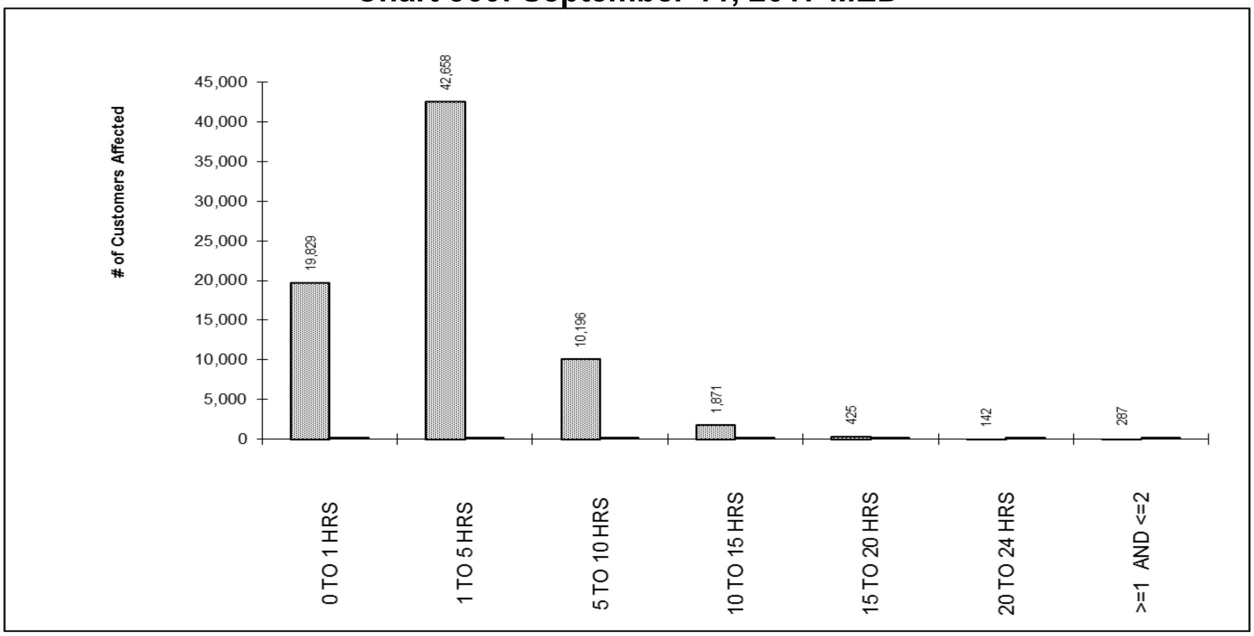
September 11, 2017 Major Event Day

Table 175 below indicates the number of customers without service at periodic intervals for this event (9/11/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 175 – September 11

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	19,829	26.30%
1 TO 5 HRS	42,658	82.87%
5 TO 10 HRS	10,196	96.39%
10 TO 15 HRS	1,871	98.87%
15 TO 20 HRS	425	99.43%
20 TO 24 HRS	142	99.62%
>=1 AND <=2	287	100.00%
Total	75,408	

Chart 360: September 11, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

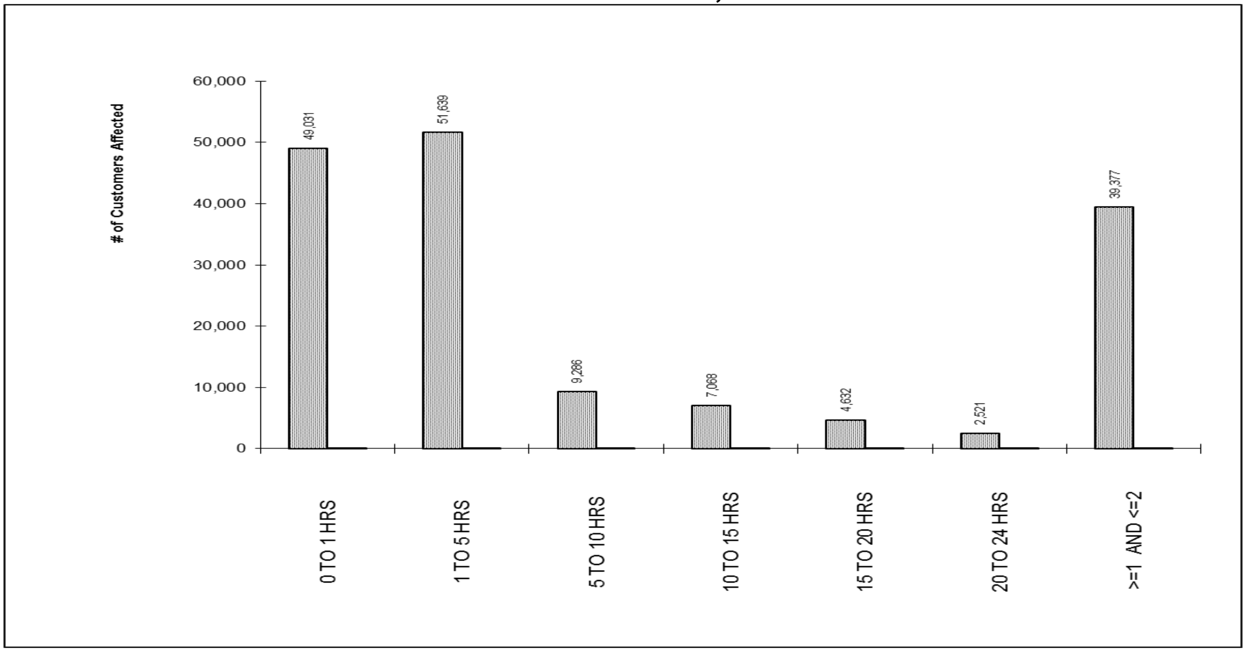
October 8-9, 2017 Major Event Days

Table 176 below indicates the number of customers without service at periodic intervals for this event (10/8/2017 – 10/9/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 176 – October 8-9

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	49,031	23.27%
1 TO 5 HRS	51,639	47.79%
5 TO 10 HRS	9,286	52.19%
10 TO 15 HRS	7,068	55.55%
15 TO 20 HRS	4,632	57.75%
20 TO 24 HRS	2,521	58.94%
>=1 AND <=2	39,377	77.64%
>=2 AND <=3	3,401	79.25%
>=3 AND <=4	16,659	87.16%
>=4 AND <=5	9,670	91.75%
>=5 AND <=6	1,407	92.42%
>=6 AND <=7	2,264	93.49%
> 7	13,713	100.00%
Total	210,668	

Chart 361: October 8-9, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

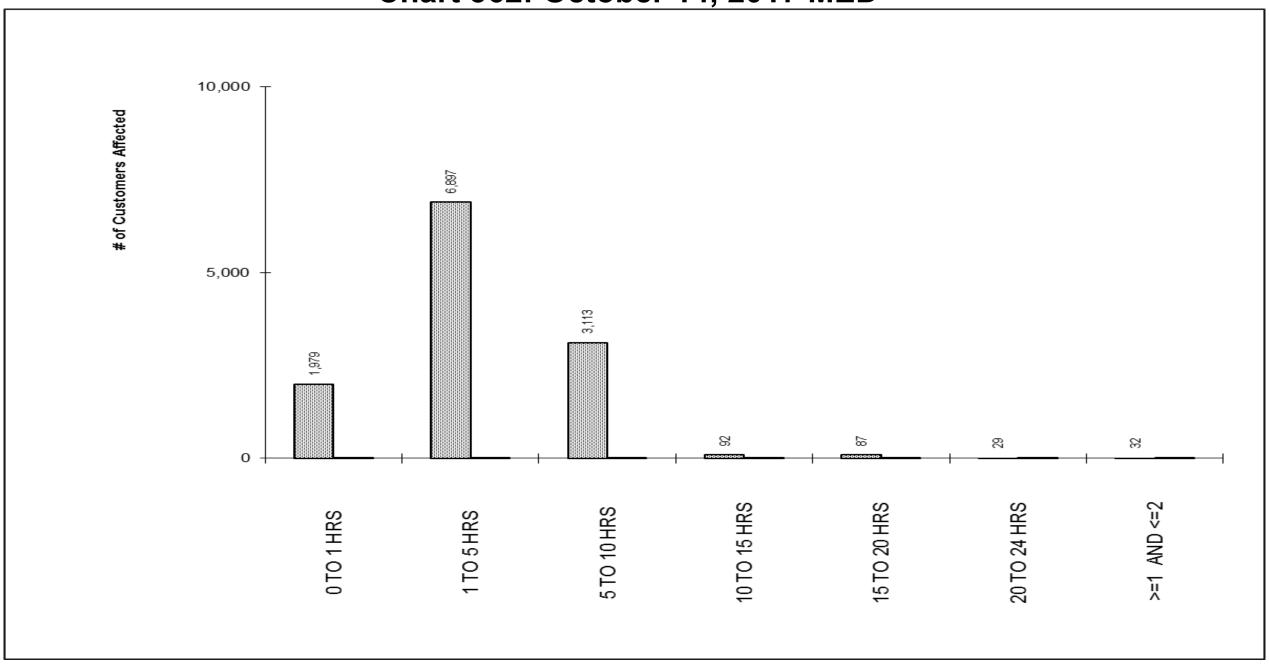
October 14, 2017 Major Event Day

Table 177 below indicates the number of customers without service at periodic intervals for this event (10/14/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 177 – October 14

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	1,979	12.21%
1 TO 5 HRS	6,897	54.78%
5 TO 10 HRS	3,113	74.00%
10 TO 15 HRS	92	74.56%
15 TO 20 HRS	87	75.10%
20 TO 24 HRS	29	75.28%
>=1 AND <=2	32	75.48%
>=2 AND <=3	1,777	86.45%
>=3 AND <=4	1,949	98.48%
>=4 AND <=5	107	99.14%
>=5 AND <=6	44	99.41%
>=6 AND <=7	23	99.55%
> 7	73	100.00%
Total	16,202	

Chart 362: October 14, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

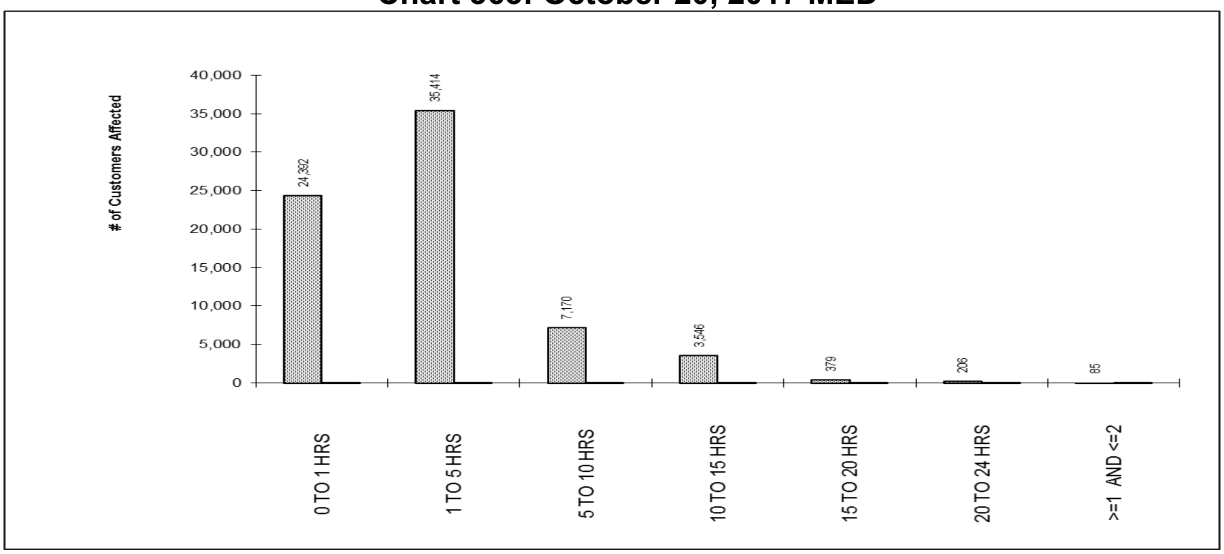
October 20, 2017 Major Event Day

Table 178 below indicates the number of customers without service at periodic intervals for this event (10/20/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 178 – October 20

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	24,392	34.26%
1 TO 5 HRS	35,414	84.00%
5 TO 10 HRS	7,170	94.07%
10 TO 15 HRS	3,546	99.05%
15 TO 20 HRS	379	99.58%
20 TO 24 HRS	206	99.87%
>=1 AND <=2	85	99.99%
>=2 AND <=3	5	100.00%
>=4 AND <=5	3	100.00%
Total	71,200	

Chart 363: October 20, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

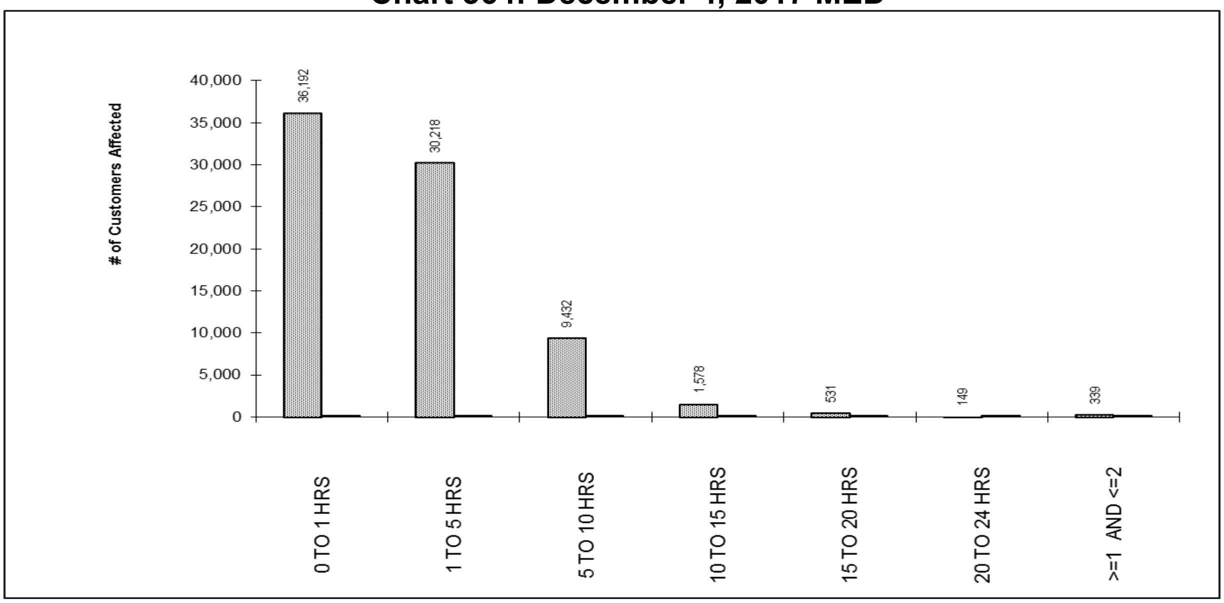
December 4, 2017 Major Event Day

Table 179 below indicates the number of customers without service at periodic intervals for this event (12/4/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 179 – December 4

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	36,192	46.14%
1 TO 5 HRS	30,218	84.66%
5 TO 10 HRS	9,432	96.69%
10 TO 15 HRS	1,578	98.70%
15 TO 20 HRS	531	99.38%
20 TO 24 HRS	149	99.57%
>=1 AND <=2	339	100.00%
Total	78,439	

Chart 364: December 4, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

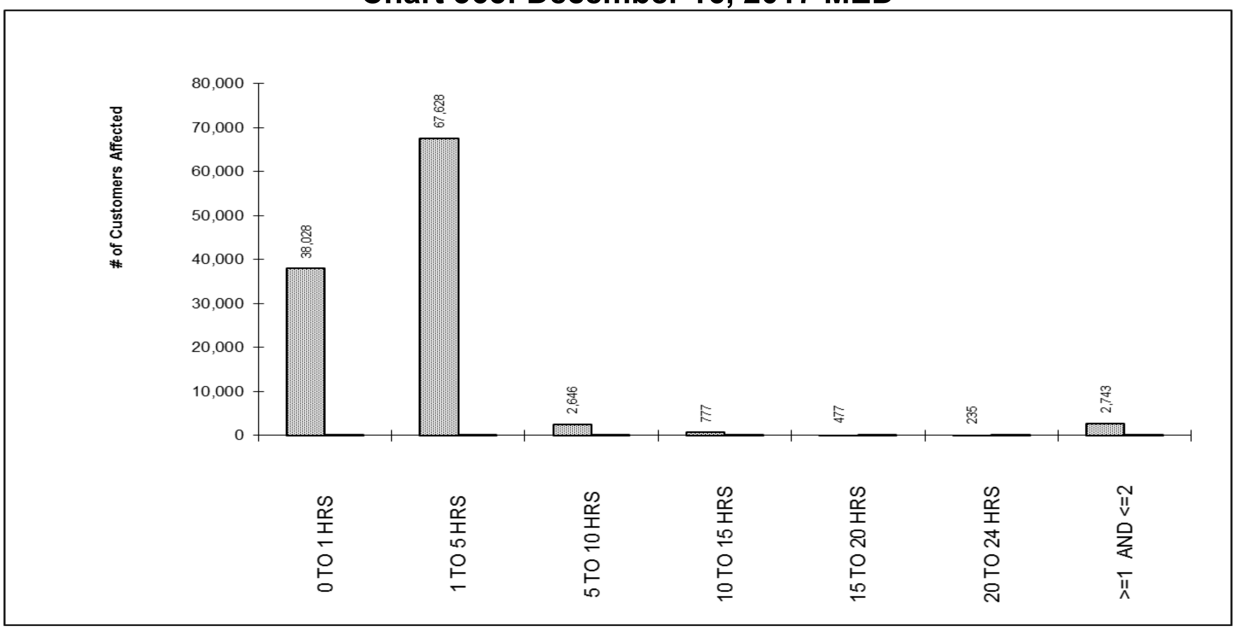
December 16, 2017 Major Event Day

Table 180 below indicates the number of customers without service at periodic intervals for this event (12/16/2017). The numbers of customers noted in the table are for only those divisions impacted by this event.

Table 180 – December 16

Outage Duration	Customers Affected	Cumulative %
0 TO 1 HRS	38,028	33.69%
1 TO 5 HRS	67,628	93.60%
5 TO 10 HRS	2,646	95.95%
10 TO 15 HRS	777	96.64%
15 TO 20 HRS	477	97.06%
20 TO 24 HRS	235	97.27%
>=1 AND <=2	2,743	99.70%
>=2 AND <=3	343	100.00%
Total	112,877	

Chart 365: December 16, 2017 MED



Note: The number of customer outages segmented by hourly restoration periods requires a level of detail not normally maintained by PG&E in its central computerized records. The information shown here is what PG&E has been able to reconstruct from several databases and may have a margin of error of up to 5%.

8. Historical Ten Largest Unplanned Outage Events for 2007-2016

Table 181 - Ten Largest 2016 Outage Events

Rank	Description	Date	Number of Customers Affected *	Longest Customer Interruption (Hours)	# of People Used To Restore Service	CPUC Major Event?
1	A strong winter storm passed through northern and central CA producing strong south winds of 30 - 50 mph across the lower elevations and 60+ across the exposed higher terrain, as well as moderate to heavy rain. A strong squall line nearly 200 miles long developed in the Sacramento Valley.	3/5/2016 – 3/7/2016	266,173	87	2,405	Yes (Mar 5th)
2	A series of three storms impacted northern and central CA with periods of moderate to heavy rain and gusty south winds. Some locations saw rain totals near 10 inches and gusts 50+ mph were also observed.	10/14/2016 – 10/16/2016	255,680	59	1,553	Yes (Oct 14th)
3	A dynamic weather system moved through the PG&E territory late Wednesday into Thursday with strong south winds. Wind gusts were generally 25 - 40 mph across the Sacramento and northern San Joaquin valley, but very strong gusts to 50 - 60 were observed over the Sierra foothills.	2/17/2016 – 2/18/2016	166,492	46	1,292	Yes (Feb 17th)
4	A weather system produced breezy northwest winds 25 – 35 mph with gusts to 50 mph in some locations. Thunderstorms were also reported in the Sacramento, San Joaquin Valleys and the Sierra foothills.	4/24/2016 – 4/25/2016	96,897	24		No
5	Tropical moisture interacted with a Pacific weather system and associated cold front to wring out significant rain across the PG&E territory. 4 – 7 inches of rain were observed along with wind gusts from 20 – 40+ mph.	12/15/2016 – 12/16/2016	91,581	38		No
6	Generally fair and seasonably cool weather was observed across the PG&E territory.	6/16/2016	82,691	15		No
7	A winter storm brought moderate to heavy rain showers, prompting flash flood watches for recent burn scars (e.g., Rim, King, Butte).	1/5/2016 – 1/6/2016	79,600	44		No
8	A very wet weather system produced considerable rain across central CA. 24 hours rain totals topped 6 inches in the wettest locations in the Sierra Nevada.	12/10/2016	77,546	56		No
9	A winter storm and associated cold front pushed west to east across the territory today bringing moderate to heavy rain and gusty southeast winds 25 to 35 with higher gusts over elevated and exposed terrain	3/11/2016	52,342	47		No
10	A strong storm system across southern CA produced low elevation snow in the southern Sierra down to near 2500 ft. and gusty northwest winds from 30 – 40 mph.	1/31/2016	48,120	52		No

* Note: Values exclude planned outages

Table 182 - Ten Largest 2015 Outage Events

Rank	Description	Date	Number of Customers Affected *	Longest Customer Interruption (Hours)	# of People Used To Restore Service	IEEE Major Event?
1	A series of strong Pacific storms moved into CA producing very heavy rain and gusty south winds. South wind gusts near 50 mph were observed along the coast with gusts near 60 mph observed in the northern Sacramento Valley. Generally 4 - 8 inches of rain were observed across the elevated terrain in the northern part of the territory. Some locations topped 8 inches with Bucks Lake for example, recording 9 inches of rain during the series.	2/6/2015 - 2/8/2015	389,567		2836	Yes
2	Tropical moisture associated with former Hurricane Dolores drifted over the territory. Atmospheric instability combined with the abundant tropical moisture initiated a widespread thunderstorm outbreak across the San Joaquin Valley and Central Coast. More than 6000 cloud to ground strikes were recorded.	7/18/2015 - 7/19/2015	154,459		925	Yes
3	A strong cold front (squall line) moved into the northern part of the territory and produced strong wind gusts, a period of very heavy rainfall, and significant outage activity. The front swiftly progressed south through the remainder of the territory. Widespread wind gusts from 40 - 55 mph were observed across the Sacramento Valley and Redding recorded a gust near 60 mph.	12/13/2015	142,059		364	Yes
4	A late winter-storm moved through the territory producing moderate rain showers, gusty south winds from 30 - 40 mph, and thunderstorms. Nearly 1000 cloud to ground lighting strikes were recorded across the Sacramento and San Joaquin Valleys	4/6/2015 - 4/7/2015	134,789		442	Yes
5	A strong high pressure ridge developed over the territory and produced the first significant heat of the season. Some selected high temperature readings: Redding 107, Fresno 106, Livermore 106, Sacramento 104, Santa Rosa 99, and San Jose 91.	6/8/2015	99,439		1104	Yes
6	The first widespread rain and snow producing system of the fall/winter season passed through the territory. Thunderstorms also developed and near 500 cloud to ground lightning strikes were recorded. Wind gusts from 25 - 35 mph were observed.	11/2/2015	92,777		33	No
7	A large transmission outage in the central coast at Moss Landing occurred. No significant adverse weather was recorded.	10/18/2015	69,906		1080	No
8	A potent Pacific weather system produced wind gusts to 40 - 50 mph across the lower elevations with gusts near 60 - 70 mph across the exposed, higher terrain. Most of the adverse weather and resultant outage impacts were observed across the northern part of the PG&E service territory.	12/10/2015	64,533		602	No
9	A cold frontal system with moderate rain showers moved through the territory and was followed by gusty northwest winds primarily along the coast. Peak winds gusts from 40 - 50 mph were observed.	11/15/2015	59,547		554	No
10	An upper level weather system moved over the territory and produced rain showers, breezy winds, and thunderstorms. The PG&E lightning detection network recorded 456 lightning strikes in the territory.	5/7/2015	57,241		1740	No

* Note: Values exclude planned outages

Table 183 - Ten Largest 2014 Outage Events

Rank	Description	Date	Number of Customers Affected *	Longest Customer Interruption (Hours)	# of People Used To Restore Service (Major Events) **	IEEE Major Event?
1	The strongest storm event in more than 3 years slammed the territory with strong winds and heavy rain showers starting on 12/11. Rain and unsettled weather began Wednesday along the north coast and then a very strong cold front developed and intensified Wednesday evening and overnight into Thursday and very slowly progressed through the territory bringing very heavy rain and strong southerly winds. The gusty southerly winds reached up to 50 mph across the Santa Cruz mountains, near 70 mph across elevated Bay Area terrain, and near 120 mph across the Sierra Crest. Over 3 inches of rain fell across many Bay Area locations and over 2 inches for northern Central Valley by Thursday afternoon.	12/11/2014 - 12/12/2014	467,394	77		Yes
2	A strong but dry storm system originating from Western Canada dropped south through the Service Area and produced very strong north to northeast winds from Tuesday morning through early Wednesday. Gusts in excess of 60 mph were reported across the Bay Area elevated terrain and foothills across the Sierra Nevada. A strong mountain wave moved into San Jose division from the east, resulting in reported gusts above 50 mph in downtown San Jose.	12/30/2014 – 12/31/2014	296,402	67		Yes (Dec 30th)
3	A strong storm moved in from the southwest, bringing heavy rain and gusty southeast winds to many areas, especially the Central Coast and San Joaquin Valley. A secondary line of heavy showers with imbedded thundershowers developed over the San Joaquin Valley during the early afternoon hours, which caused significant outage activity. Wind gusts up to 47 mph were also observed across the lower elevations.	2/28/2014 – 3/1/2014	167,137	55		N
4	Two strong Pacific weather systems produced an impressive round of precipitation across the territory Tuesday and Wednesday. Accompanying the rain showers were breezy to gusty southerly winds that developed through the San Joaquin Valley and adjacent elevated terrain. Rainfall totals were 7 inches across the Santa Cruz Mountains and the Central Sierra and generally 2 - 4 inches across the lower elevations in the Bay Area.	12/02/2014 – 12/04/2014	138,447	34		Yes (Dec 3rd)
5	An “Atmospheric River” weather event delivered significant rain and high-elevation mountain snow to the territory. The abundant rain and gusty south winds to 40 mph at times produced a prolonged stretch of light to moderate elevated outage activity. Rain totals from the event were highest across the central Sierra and the north coast where 7 – 15 inches of rain fell during the event.	2/7/2014 – 2/8/2014	102,832	35		N
6	At 3:20 AM on Sun 8/24/2014 a magnitude 6.0 earthquake was observed in the North Bay Area near American Canyon, Ca. An earthquake summary poster from USGS can be found here: http://earthquake.usgs.gov/earthquakes/eqarchives/poster/2014/20140824.pdf	8/24/2014	99,705	30		Yes
7	A strong ridge of high pressure and lack of the marine layer and sea-breeze combined to produce hot temperatures for Bay Area interior valleys and across the interior. Maximum temperatures reached over 100 in Santa Rosa and Livermore on Sunday and up to 105 across the interior Central Valley.	6/8/2014 – 6/9/2014	83,962	39		N
8	A wet weather system delivered heavy rain across Northern California and the Sierra, along with moderate rain throughout the Bay Area. After the front moved through, thunderstorms developed and produced 331 lightning strikes within the PG&E territory.	9/25/2014	61,597	23		N
9	A weather system delivered the first widespread rain of the season south of a Salinas to Sonora line and also produced a northwest gust front down the San Joaquin Valley where gusts up to 40 mph were observed in Fresno and Bakersfield.	10/31/2014	55,145	22		N
10	The weather system with a very moist air mass slid through the Bay Area early Thursday morning and produced light showers and drizzly conditions that resulted in isolated significant outage activity in the east Bay Area.	9/18/2014	39,860	17		N

* Note: Values exclude planned outages.
** Note: This data is requested only for Major Event days.

Table 184 - Ten Largest 2013 Outage Events

Rank	Description	Date	Number of Customers Affected *	Longest Customer Interruption (Hours)	# of People Used To Restore Service (Major Events) **	CPUC Major Event?
1	On 11/19 into 11/20, a weather system moved into the territory and delivered up to 2 inches of rain over elevated terrain. It was the first significant rain storm of the season. Then on 11/21 into 11/22 surface low pressure over southern California combined with developing high pressure in Nevada to deliver very strong north to northeast winds across the north half of the Service Territory. Winds were very strong over elevated terrain; wind gusts up to 65 mph were observed in the Oakland hills (Oakland North RAWS) and to 101 mph in the northern Sierra Nevada. (The wind gust at Oakland north was second only to the January 4th mega-storm gust of 71 mph). Wind speeds near 45 - 50 mph were also observed over lower elevation locations such as Oakland and Santa Rosa.	11/19/2013 - 11/22/2013	385,017	143		N
2	The marine layer surged onto the coast and delivered coastal mist and drizzle which ultimately resulted in an insulator flashover event. The event was preceded by a series of brisk wind events which may have increased salt contamination along the coast.	6/23/2013	170,429	15		N
3	Fair and dry weather was observed on 11/12/2013. An unplanned outage occurred in the Bellota substation.	11/12/2013	113,266	10		N
4	High pressure built over California and maximum temperatures from 99 - 107 were observed along the Central Valley. Temperature maximums near the coast were in the 60s to 70s with 70s - 90s for coastal to intermediate valleys. Most customers were impacted by trouble on the Transmission system.	7/19/2013	99,738	18		N
5	Overnight Sunday into the early morning hours of Monday April 8, 2013, a strong Pacific Jet Stream drove a small but intense cold front with very gusty northwest winds into the California coast and Bay Area. Gusts along the coast reached generally into the 50 - 60 mph range with the peak gust of 75 mph recorded at a station on the west edge of San Francisco County.	4/8/2013	93,200	42		N
6	A strong ridge of high pressure built over California bringing extreme heat to all locations except the coast and immediate coastal valleys. High temperatures on 7/1 near the coast ranged from the 70s - 80s with 90s - low 100s for coastal Valleys. Temperatures were extreme in the interior with maximum temperatures up to 111 in the Central Valley. The heat intensified on 7/2 where maximum soared again into the 100s, with Redding observing a 116 degree maximum.	7/1/2013- 7/2/2013	93,194	29		N
7	On Sunday a weak area of low pressure moved west to east through the Territory bringing increasing clouds, light showers and snow showers over the Sierra and a few light stray showers elsewhere, primarily across the south. Most customers were impacted by a fault on a substation relay.	3/3/2013	69,578	11		N
8	A classic California October offshore wind event unfolded 10/3/2013 as surface high pressure built north of the Service Territory. Wind speeds were generally 20 – 35 mph with gusts to 40 – 55 across the Sacramento valley, northern Sierra Nevada and elevated terrain around the Bay Area.	10/3/2013	56,573	25		N
9	The ridge of high pressure dramatically amplified delivering significant heat across the Territory. Maximum temperatures across the interior valley locations reached above 105 with Red Bluff reaching 112 degrees. Overnight temperatures remained warm on the far ends of the valley, with minimum temperatures only dipping into the upper 70s in the southern San Joaquin and mid 80s in the northern Sacramento Valley.	6/8/2013	52,442	22		N
10	A cold and dynamic weather system dropped southwestward into the territory and brought cooler and very unsettled weather in the form of rain, snow and gusty winds. Winds were strongest over elevated terrain of the Bay Area – Altamont pass gusted to 69 mph.	10/27/2013	49,692	36		N

* Note: Values exclude planned outages.
** Note: This data is requested only for Major Event days.

Table 185 - Ten Largest 2012 Outage Events

Rank	Description	Date	Number of Customers Affected *	Longest Customer Interruption (Hours)	# of People Used To Restore Service (Major Events)**	CPUC Major Event?
1	The final and strongest storm of an 'Atmospheric River' series moved through the territory on 12/02/2012 delivering widespread gusts of 50-70 mph in the northern Sacramento Valley. The strongest wind observed was in Plumas National Forest where a gust of 102 mph was recorded. This system also brought heavy amounts of rain across northern California where localized flooding and mudslides were reported in numerous locations. Precipitation totals from the entire series (See Rank #3) topped 20 inches in the wettest locations in the north.	12/02/2012	298,393	80		N
2	A series of moderate to strong storms impacted the Service Area delivering rain, wind, thunderstorms and several feet of snow across the northern mountains and Sierra. The second storm in the series moved onto the Humboldt coast during the evening of 12/21 and then progressed south and east through the territory overnight into 12/22. The third and strongest storm of the series developed just off the coast and pushed a vigorous cold front through the Service Area on 12/23. Gusts up to 80 mph were observed over elevated terrain. Yet another round of heavy mountain snow fell across the north and the Sierra. Up to 6 feet of snow fell in some locations across the north during the series making restoration difficult.	12/21/2012 – 12/23/2012	195,099	172		N
3	The first storm of the 'Atmospheric River' series moved into the territory on 11/28 and delivered strong south winds up to 50-60 mph and heavy rains. The second and stronger system impacted the Territory 11/29 through 11/30. This system brought significant rainfall totals across the north half of the Territory with up to 10" observed in the wettest locations across elevated terrain. After a brief break on 12/1 the final and strongest storm of the series moved through on 12/2 (see Rank 1).	11/28/2012 – 11/30/2012	183,145	71		N
4	On 1/20 a strong Pacific weather system with an associated well-organized frontal band pushed north to south through the territory. This system delivered heavy rains and gusty southerly winds to most locations and was the first rain in a month or more for many locations across the south half of the territory.	1/20/2012 – 1/21/2012	168,496	40		N
5	On 3/16 a system impacted Northern Region and the Bay Area with heavy showers, gusty southerly winds, and a few lightning strikes. On 3/17 this system progressed south through Central Coast and Central Valley Divisions bringing heavy rains, thunderstorms and gusty winds. On 3/18, snow levels fell as cold air filtered in resulting in low snow outage activity from Grass Valley south into Fresno division.	3/16/2012 – 3/18/2012	146,602	63		N
6	Overnight Sunday, 10/21/2012 into Monday, 10/22/2012 a cold front associated with a unusually cold, early-season storm swept west to east across the PG&E Service Area bringing a variety of adverse weather including rain, wind, thunderstorms and low snow. Two tornados also formed in the eastern Sacramento Valley and Sierra foothills.	10/22/2012	129,801	22		N
7	A vigorous late season weather system swept through the Service Area on 6/4 – 6/5 and brought a variety of adverse weather conditions. This system delivered over 700 lightning strikes across the Service Territory with the majority occurring in the northern Sacramento Valley. Winds gusting to 40 mph came up abruptly in the San Joaquin causing numerous wind related outages.	6/4/2012 – 6/5/2012	93,735	22		N
8	On 12/17 a weakening front moved through the Service Area bringing rain showers and breezy southerly winds up to 35-40 mph across the Sacramento Valley. Showers progressed into the southern San Joaquin overnight into 12/18. Post-frontal northwest winds then developed across the San Joaquin Valley, with gusts up to 35 mph observed at Fresno.	12/17/2012 – 12/18/2012	83,063	18		N
9	A Pacific storm system and associated cold front and swept through the north half of the PG&E Service Area. The front brought brisk south winds of 30 to 40 mph, with higher gusts over elevated terrain. During the afternoon, thunderstorms formed along the north coast and northern Sacramento Valley in the post-frontal environment.	3/31/2012	68,165	21		N
10	Non weather related event.	7/21/2012	47,182	30		N

* Note: Values exclude planned outages. ** Note: This data is requested only for Major Event days.

Table 186 - Ten Largest 2011 Outage Events

Rank	Description	Date	Number of Customers Affected *	Longest Customer Interruption (Hours)	# of People Used To Restore Service (Major Events)**	CPUC Major Event?
1	A series of cold and powerful storms moved through the Service Area with the majority of outages resulting from low snow and gusty winds. The bulk of outage activity occurred overnight Sat 19th to Sun 20th as strong southeasterly wind gusts were observed in many locations (SF Apt 45 mph, Stockton 44 mph, Redding 45 mph, Bakersfield 40 mph). Excessive low elevation snowfall caused significant outage activity. Yosemite Division was hard hit with low snow (snow totals - 38" reported at 4200' above Oakhurst)	Mar 17 -22	581,949	256	1,839***	Y-Partial (See Table 4)
2	After a short respite from inclement weather, another strong and cold storm moved into the Service Area on March 24th. Once again, strong southerly wind gusts were observed (SF Apt 38 mph, Oakland 37 mph). Low elevation snow was the main adverse weather issue with Sierra, North Valley, Stockton, and Yosemite Divisions hard hit with low snow. (snow totals - 13" in Shingletown, 25" at 3700' along Highway 88, 34" at the 4200' above Oakhurst)	Mar 24 – 27	464,767	504	1,839***	Y-Partial (See Table 4)
3	A series of cold storms moved across the Service Area starting Valentine's day until Feb 19. On the 17th very cold air filtered into the region lowering snow levels enough to create low snow related outages across the Coast Ranges of Humboldt Divisions, and down the entire Sierra Nevada foothills. The hardest hit divisions were Humboldt, Yosemite, and Sierra. (Snow totals - 14" in Shingletown, 38" at 3700' on Highway 88, 12" at 2600' in Humboldt County). Snow recorded down to 500 feet in Humboldt.	Feb 15 – 19	357,802	151		N
4	High pressure in the Great Basin and low pressure off the southern California coast set the stage for strongest northeast wind event to hit the Service Area in the last 20 years. Gusts up to 50 mph were common in the Sierra with the highest gust of 94 mph recorded on Mt. Elizabeth in the Yosemite division. Winds were quite strong in the Valley as well (Stockton 52 mph, Redding 40 mph, Fresno 36 mph)	Nov 30 – Dec 1	325,942	131		N
5	A strong and cold storm affected the entire Service Area with low snow falling in the Northern Region and gusty southerly winds and heavy rains further east and south. The hardest hit divisions were Humboldt, North Valley, and Sierra. (Snow totals – 18" in Shingletown, 20" in Susanville, 19" in Grass Valley). Snow recorded down to 500 feet in Humboldt.	Feb 24 - 25	187,851	152		N
6	An early season storm moved through the Service Area bringing moderate southerly winds and heavy precipitation rates. In Ukiah, more than a half inch of rain fell within one hour in the early morning. The Central Valley Region experienced the most outages. These were mainly pole fires/flashover caused by the first rain to fall in the area after months of prolonged dry weather.	Oct 5	100,357	24		N
7	Widespread thunderstorm activity broke out across the southern part of the Service Area early in the morning with the biggest impacts in Fresno and Kern divisions. The Bakersfield area in Kern was hit particularly hard by lightning, with Kern Division recording 3833 lightning strikes for the day.	Sept 10	77,443	69		N
8	A late season cold storm moved through the Service Area with low snow outage conditions across divisions in the Sierra Nevada, especially the Sierra Division. (8" of snow at 3700' along Highway 88) Thunderstorms and associated lightning also broke out across the Central Valley. Impacts were minimal in the Bay Area and Central Coast Regions.	May 15	62,863	30		N
9	A non-weather related outage day with maximum temperatures along the Central Valley in the mid-80s. The outage count was only slightly above average for a June day; however, a large number of customers in the East Bay were affected by two distribution substation outages.	Jun 12	50,028	15		N
10	The first warm day of the spring was observed in many areas. San Jose had a high of 84. This could have contributed to the above average outage total. No other adverse weather was reported. The largest impacts were recorded in the San Francisco and San Jose Divisions.	Apr 1	44,177	6		N

* Note: Values exclude single distribution line transformer and planned outages. ** Note: This data is requested only for Major Event days.
*** Note: During the course of the March 17-27, 2011 storms, approximately 1,839 PG&E Operations, Maintenance and Construction (OM&C) employees responded. These employees included electric and gas construction crews, troublemen, meter technicians, clerical staff, gas and electric estimators and meter readers. Resources were dispatched and moved from lesser impacted areas to the more heavily impacted areas. In addition to PG&E personnel, 110 vegetation crews, 10 contract crews (approximately 200 individuals), and 36 mutual aid crews (approximately 175 individuals) were utilized to supplement existing resources.

Table 187 - Ten Largest 2010 Outage Events

Rank	Description	Date	Number of Customers Affected *	Longest Customer Interruption (Hours)	# of People Used To Restore Service (Major Events)**	CPUC Major Event?
1	A strong jet stream developed over the Eastern Pacific, which spawned a series of outage producing weather events that included: - Three impulses of strong winds; gust above 50 mph each day (Jan 18, 19, 20) - Periods of moderate to heavy rainfall (Jan 18, 19, 20, 21) - Bands of thundershower activity (several thousand strikes Jan 18-21) - Heavy snowfall at low elevations of the Sierra Nevada (Jan 21, 22)	Jan 18-24	1,169,513	497	3,830 ***	Y
2	A strong storm system with several impulses moved through the entire Service Area during the Dec 17 – 20 period bringing gusty winds and heavy rain. Wind gusts during the period: 43 mph at Stockton, 43 mph at Salinas, 46 mph at SFO, 43 at Red Bluff.	Dec 17-20	215,116	120		N
3	A series of cold storms brought significant snow to low elevations in the Sierra Nevada foothills. The snow came early in the season, when deciduous trees still retained most of their leaves. Excessive snow loading occurred on trees causing large limbs to break off and fall onto power lines. Snowfall amounts ranged from near 1 foot at the 3000' elevation, to several feet above 5000'. This storm produced the most low elevations snow in November in the last 15 years.	Nov 20-21	215,245	186		N
4	Storm system with strong south winds on Dec 28 (gusts to 47 mph at Marysville, 41mph at Stockton, 46 mph SFO) followed by strong northwest winds on Dec 29 (gusts to 46 mph at San Jose, 41 mph at Stockton, 43 at Bakersfield, 46 mph at SFO).	Dec 28-29	180,370	47		N
5	A late season storm brought rain, thunderstorms, and wind. Over 500 lightning strikes were recorded. The storm was particularly strong along the Central Coast and in the southern San Joaquin Valley. Reported wind gusts: 45 mph at Salinas, 46 mph at Santa Maria, 46 mph at Bakersfield 46.	Apr 11-12	122,050	73		N
6	Early season storm brought thunderstorms to Northern Region (over 1000 strikes recorded) along with rain to other parts of the Service Area. In many cases, this was the first rain of the season causing flashover outages.	Sep 8-10	114,402	60		N
7	An early season storm brought high winds and heavy rain to primarily the Northern Region. Redding recorded a peak wind gust of 49 mph. Santa Rosa recorded 4.75" of rainfall.	Oct 24	111,522	43		N
8	Storm system swept across the Service Area bringing rain and gusty winds. Reported wind gusts: 41 mph at Salinas, 41 mph at Bakersfield.	Dec 4-5	98,041	21		N
9	Heat wave conditions resulted in the hottest two days of the summer. Maximum temperatures exceeded 110 in portions of the Central Valley (111 at Bakersfield on 8/25). Maximum temperatures between 100 and 110 were reported both days at many coastal valley areas (109 at Ukiah on 8/25, 107 at Santa Rosa on 8/24, 105 at Livermore on 8/25).	Aug 24-25	97,616	82		N
10	Heat wave affected the service area, on both days Central Valley maximum temperatures ranged between 100 and 110; maximum temperatures above 100 were reported in coastal valleys on 6/27.	Jun 27-28	87,751	38		N

* Note: Values exclude single distribution line transformer and planned outages.
*** Note: This data is requested only for Major Event days.
*** Note: During the course of the January 18, 2010 Storm approximately 3,830 PG&E Operations, Maintenance and Construction (OM&C) employees responded. These employees included electric and gas construction crews, troublemen, gas service representatives, meter technicians, clerical staff, gas and electric estimators and meter readers. Resources were dispatched and moved from lesser areas to the more heavily impacted areas. In addition to PG&E personnel, 1000 vegetation workers and 60 contract crews (approximately 360 individuals) were utilized to supplement existing resources.
impacted areas to the more heavily impacted areas. In addition to PG&E personnel, 1000 vegetation workers and 60 contract crews (approximately 360 individuals) were utilized to supplement existing resources.

Table 188 - Ten Largest 2009 Outage Events

Rank	Description	Date	Number of Customers Affected *	Longest Customer Interruption (Hours)	# of People Used To Restore Service (Major Events)**	CPUC Major Event?
1	A strong early season storm affected the entire service area with many stations reporting wind gusts over 50 mph (57 mph at Ft. Funston (SF), 56 mph at Fairfield, 55 mph at Oroville, 51 mph at Monterey). Single day rainfall totals ranged between two and five inches at many locations (4.54 in. at Watsonville, 4.27 in. at Fairfield, and 3.66 in. at Napa). National Weather Service records indicate this storm was the strongest October rain and wind event since 1962.	10/13–10/14	617,589	244***	4,400 ****	Y
2	A strong cold front produced significant snowfall on Feb. 13 in the 1500-3000 ft. range of the northern and central Sierra foothills (up to 2 feet of snow at 3000 ft. and @ 1 foot at 2000 ft.). A second storm followed on Feb.15 producing widespread heavy rain and strong wind gusts to the entire Service Area (67 mph at Valley Ford, 59 mph at Oroville, 50 mph at Redding, and Ft. Funston (SF), 47 mph at Salinas, 43 mph at San Luis Obispo. A third storm on Feb 16 delivered additional rainfall and wind gusts in the 30 to 40 mph range at several locations.	2/13-2/17	340,582	107		N
3	A large cluster of thunderstorms produced widespread lightning activity in the Bay Area and Sacramento Valley on Sep. 12. The lightning activity was followed by a weak weather front the next day that produced the first light rain of the season over much Northern California resulting in flashover related outages.	9/12-9/14	190,671	92		N
4	A strong cold front produced significant snowfall at the 1000-3000 ft. range of the Sierra foothills (up to 2 feet of snow was observed at 3000 ft., @ 1 foot at 1500 ft.) Light snow was reported at locations in the Central Valley.	12/7	147,630	113		N
5	Strong northerly winds developed across the entire Service Area with the gusts in the 45 to 55 mph range in the Bay Area and Sacramento Valley (52 mph at Fairfield, 49 mph at Sacramento, 45 mph at Red Bluff)	11/28	119,504	84		N
6	Strong north to northwest winds in the 40 to 60 mph range followed the passage of a weak weather front through the service area (58 mph at Ft. Funston (SF), 58 mph at SF Airport, 50 mph at San Carlos, 46 mph at Stockton)	4/14	116,406	45		N
7	An area of low pressure produced a large outbreak of thunderstorms with widespread lightning overnight on Jun. 3, continuing into the morning of June 4.	6/3-6/4	98.187	38		N
8	Strong north to northwest winds in the 45 to 55 mph range were recorded throughout the Sacramento and San Joaquin Valleys following the passage of a weak weather front (52 mph at Merced, 49 mph at Stockton, 47 mph at Modesto and Madera, 46 mph at Red Bluff, 45 mph at Fresno).	10/27	70,901	20		N
9	A winter storm accompanied by periods of moderate to heavy rainfall and scattered thundershower activity crossed the service area. Rainfall totals of up to 2 inches were reported.	12/12	54,111	41		N
10	Widespread thunderstorm activity resulted in several hundred lightning strikes in Areas 4, 5, 6 and 7.	5/28	52,705	22		N

* Note: Values exclude single distribution line transformer and planned outages.
** Note: This data is requested only for Major Event days.
*** Note: This duration was due to the lack of access caused by flooding in the Stockton area. Access was granted after waters receded. Work was the completed and service was restored to the six customers remaining out of service.
**** Note: Approximately 4,400 PG&E Operations, Maintenance & Construction (OM&C) employees responded. In addition to PG&E personnel, 400 vegetation workers and 42 contract crews (approximately 210 individuals) were utilized to supplement existing resources.

Table 189 - Ten Largest 2008 Outage Events

Rank	Description	Date	Number of Customers Affected *	Longest Customer Interruption (Hours)	# of People Used To Restore Service (Major Events)**	CPUC Major Event?
1	Strongest storm system since December 1995 affected the entire service area on Jan 4. Wind gusts exceeded 65 mph at many low elevation sites throughout the service area (Redding 70 mph, Beale AFB 69 mph, Sacramento Apt. 66 mph, Pt. San Pablo 83 mph), with some coastal hills and foothill sites gusting to over 80 mph (Los Gatos, elev. 2000 ft. 105 mph, Big Rock , Marin Co. elev. 1500 ft. 83 mph). Rainfall totals on Jan 4 ranged up to 4 inches with storm totals above 6 inches in the North Bay counties. Multiple lightning strikes were reported on Jan 4 and 5.	1/3 – 1/6	1,631,765	290	7,130 ***	Y
2	A series of cold winter storms crossed the state. The first system (Jan 24-25) delivered gusty winds (generally in the 30 to 50 mph range), up to 2 inches of rain and snow below 2000 ft. A second system focused on the southern half of the service territory brought additional rain and thundershower activity along with even gustier winds (Santa Maria 67 mph, Bakersfield 49 mph).	1/24 – 1/27	303,168	172		N
3	A storm system with wind gusts in the 25 to 40 mph range crossed the state. Most locations reported under one inch of rain with a few coastal stations reaching two inches total.	10/31 – 11/1	189,811	50		N
4	The first rains of the winter season were accompanied by winds generally gusting from 25 to 35 mph (Red Bluff 44 mph). A large number of flashover incidents were likely triggered by the combination of light rain and power lines heavily sooted after the widespread summer season wildfires.	10/3 – 10/4	147,703	65		N
5	Gusty winds with periods of moderate rain accompanied a weather system that crossed the state. Wind gusts were generally in the 30 to 50 mph range (SF Airport 47 mph, Stockton 47 mph, Merced 45 mph).	2/2 – 2/3	121,865	65		N
6	Gusty winds from this storm were strongest in the southern half of the service area. Gusts between 50 and 55 mph were reported at SF Airport, Salinas, Santa Maria, Red Bluff and Bakersfield.	2/23 – 2/24	113,086	101		N
7	A weather front brought gusty winds and periods of moderate to heavy rain to the state. Post-frontal west to northwest wind gusts were strongest in the Bay Area (SF Apt 54 mph, Hayward 63 mph, Oakland 47 mph, Salinas 51 mph)	12/25	111,134	102		N
8	Gusty north winds generally in the 25 to 35 mph range were reported in the north. San Joaquin and Central Coast winds gusted from 30 to over 50 mph (Santa Maria 41 mph, Stockton 45 mph, Madera 52 mph, Merced 47 mph)	5/22	105, 635	102		N
9	Gusty north winds developed on the evening of Feb 13 and continued through Feb 14. Winds were generally in the 30 to 45 mph range, with strongest gusts in the Central Valley (Redding 48 mph, Marysville 48 mph, Sacramento 47 mph)	2/13 – 2/14	98,788	47		N
10	Gusty north winds between 20 and 35 mph resulted in a record breaking early season heat wave. Bay Area and Central Valley temperatures ranged from 100 to 105F	5/15	84,659	28		N

* Note: Values exclude single distribution line transformer and planned outages.
** Note: This data is requested only for Major Event days.
*** Note: Approximately 6,000 PG&E Operations, Maintenance & Construction (OM&C) employees responded. In addition to PG&E personnel, 300-350 vegetation crews (approximately 700 individuals), 70 contract crews (approximately 450 individuals) and 28 mutual assistance crews (approximately 170 individuals) from Southern California Edison (SCE), San Diego Gas and Electric (SDG&E), City of Gridley, City of Redding, and Sierra Pacific Power were utilized to supplement existing resources

Table 190 - Ten Largest 2007 Outage Events

Rank	Description	Date	Number of Customers Affected *	Longest Customer Interruption (Hours)	# of People Used To Restore Service (Major Events)**	CPUC Major Event?
1	Gusty winds and rain Feb 26 and 27. Peak wind speeds of 30-45 mph Bay Area (Oakland 40 mph, SF approximately 43 mph). Interior valley reported 25-40 mph gusts, strongest in the San Joaquin Valley (Fresno 38 mph). Rainfall generally below one inch. Snow levels lowered to 2000 ft. as far south as the San Joaquin Valley on Feb 27.	2/26 - 2/28	266,764	214 ***		N
2	Heat wave centered around July 5. Maximums between 105-115 degrees in the interior valleys, 95-110 degrees in the coastal valleys.	7/4 - 7/7	172,778	20		N
3	Widespread lightning with subtropical rain. Lightning all three days but extensive strikes on Aug 30 over Areas 3 and 4	8/29 - 8/31	149,883	75		N
4	Early summer hot temperatures in the interior; maximums 100-105 degrees in the Central Valley, upper 80's to low 100's in the coastal valleys. North winds 20-25 mph	6/14 - 6/16	137,977	27		N
5	Light rain across Central and North Areas. Winds generally below 25 mph. Lightning on Sep 21 in the evening continuing through Sep 22 mainly in San Joaquin Valley and foothills. Many outages reported due to insulator flashover resulting from light rain.	9/22	100,606	33		N
6	Rain, gusty winds and scattered thundershowers Feb 22. Peak winds at Redding - 51 mph on the Feb 21 and 44 mph on Feb 22nd. Bay Area gusts from 25-35 mph (Oakland 37 mph) on the Feb 22nd. Over 2 inches of rain in Eureka, less than one inch most other locations	2/22 - 2/23	96,420	79		N
7	Light rain far north, winds below 25 mph. Cold morning temperatures.	1/16	91,695	24		N
8	Thunderstorms / lightning in the Sierra foothills of Area 4 and 5. Afternoon temperatures between 95-100 degrees in the Central Valley	7/24	70,602	29		N
9	Light rain across the Service Area. Many outages reported due to insulator flashover resulting from light rain.	10/10	62,434	34		N
10	Moderately strong winds occurred across the Central and Northern Service Areas with gusts up to 50 mph.	12/27	59,594	20		N

* Note: Values exclude single distribution line transformer and planned outages.
** Note: This data is requested only for Major Event days.
*** Note: Reflects an outage at two customer locations in a remote area that experiences deep snow with limited access.

9. The Number of Customer Inquiries on Reliability Data and the Number of Days per Response

The following table provides the total number of customer inquiries, and PG&E response times for the year 2017.

	YTD 2017 ESR CLOSED CASES						
	Total Cases	Closed 0-7 Days	Closed 8-14 Days	Closed > 14 Days	% Closed 0-7 Days	% Closed 8-14 Days	% Closed > 14 Days
BAY AREA REGION	**293**	**290**	**3**	**0**	**99%**	**1%**	**0%**
Diablo	112	112	0	0	100%	0%	0%
East Bay	53	53	0	0	100%	0%	0%
North Bay	78	76	2	0	97%	3%	0%
San Francisco	50	49	1	0	98%	2%	0%
CENTRAL COAST REGION	**599**	**598**	**1**	**0**	**100%**	**0%**	**0%**
Central Coast	69	69	0	0	100%	0%	0%
De Anza	76	76	0	0	100%	0%	0%
Los Padres	54	54	0	0	100%	0%	0%
Mission	109	108	1	0	99%	1%	0%
Peninsula	79	79	0	0	100%	0%	0%
San Jose	212	212	0	0	100%	0%	0%
CENTRAL VALLEY REGION	**159**	**152**	**7**	**0**	**96%**	**4%**	**0%**
Fresno	30	30	0	0	100%	0%	0%
Kern	26	26	0	0	100%	0%	0%
Stockton	73	68	5	0	93%	7%	0%
Yosemite	30	28	2	0	93%	7%	0%
NORTHERN REGION	**327**	**321**	**6**	**0**	**98%**	**2%**	**0%**
Humboldt	29	29	0	0	100%	0%	0%
North Valley	19	19	0	0	100%	0%	0%
Sacramento	121	119	2	0	98%	2%	0%
Sierra	108	104	4	0	96%	4%	0%
Sonoma	50	50	0	0	100%	0%	0%
GRAND TOTAL	**1378**	**1361**	**17**	**0**	**99%**	**1%**	**0%**

Note: ESR = Electric Service Reliability (Recurring Outages). This Includes ESR cases created on or after January 1, 2017 and closed as of December 31, 2017.

10. Appendix A – Definitions, Acronyms & Abbreviations

AIDI – Average Interruption Duration Indices

AIFI – Average Interruption Frequency Indices for sustained outages only

Customer: A metered electrical service point for which an active bill account is established at a specific location.

CAIDI: Customer Average Interruption Duration Index - The Customer Average Interruption Duration Index (CAIDI) represents the average time required to restore service.

CESO: A term that counts the number of Customers Experiencing Sustained Outages.

DART – Distribution Asset Reconciliation Tools – a distribution asset database used by PG&E.

Distribution system: That portion of an electric system that delivers electric energy from transformation points on the transmission system to the customer. PG&E defines its distribution system as line voltage less than 60 kilovolts (KV). The distribution system is generally considered to be anything from the distribution substation fence to the transformer prior to stepping down the voltage to the customer premise.

EON: EON stands for Enhanced Outage Notification, now retired, that was used to identify and record momentary outages. Customers agreed to put EON devices in their homes and the device would send PG&E information when the customer experienced and outages. The EON project was used prior to the availability of Smart Meter data.

IEEE – Institute of Electrical and Electronics Engineers, Inc.

ILIS – Integrated Logging and Information System – The tool PG&E's distribution operators use to log electric outages.

ISO: The California Independent System Operator. The ISO operates the transmission system throughout most of the State of California, including throughout PG&E's service territory.

Major Event: Designates an event that exceeds reasonable design and or operational limits of the electric power system. A Major Event includes at least one Major Event Day. *See also:* **Major Event Day**.

Major Event Day (MED): A day in which the daily system, System Average Interruption Duration Index (SAIDI) exceeds a Major Event Day threshold value. For the purposes of calculating daily system SAIDI, any interruption that spans multiple calendar days is accrued to the day on which the interruption began.

MAIFI: Momentary Average Interruption Frequency Index

The Momentary Average Interruption Frequency Index (MAIFI) indicates the average frequency of momentary interruptions. PG&E's momentary outage reporting tools were originally designed to track momentary outages based on D96-09-045. As provided in D.16-01-008, the provided MAIFI metric is the same as what PG&E has used in its prior annual reliability reports and corresponds to the $MAIFI_E$ definition contained in the IEEE Guide for Electric Power Distribution Reliability Indices (IEEE 1366 standard), which counts multiple outage interruptions that occur close to each other in time as a single momentary outage event. This metric is equal to the total number of customer momentary interruption events divided by the total number of customers served and does not include the events immediately preceding a sustained interruption.

Momentary interruption: The brief (five minutes or less) loss of power delivery to one or more customers caused by the opening and closing operation of an interrupting device**.**

Non-Restorable Outage Process – PG&E utilizes a non-restorable outage designation and process for unique outage events involving requests by customers or agencies requiring that facilities be de-energized, access not permitted, and/or restoration be delayed due to circumstances not initiated or controlled by PG&E. This process includes adjusting the outage minutes to accurately reflect these situations and to measure PG&E's actual true performance.

ODB – Operations Database - ODB is the outage database for PG&E

Planned outage: The intentional disabling of a component's capability to deliver power, done at a preselected time, usually for the purposes of construction, preventative maintenance, or repair.

SAIDI: System Average Interruption Duration Index

The System Average Interruption Duration Index (SAIDI) indicates the total duration of interruption for the average customer during a predefined period of time. It is commonly measured in minutes or hours of interruption.

SAIFI: System Average Interruption Frequency Index

The System Average Interruption Frequency Index (SAIFI) indicates how often the average customer experiences a sustained interruption over a predefined period of time.

SCADA: Supervisory Control and Data Acquisition – an online database for distribution operators to remotely gather information and control the distribution system.

Sustained interruption: Any interruption not classified as a part of a momentary event. That is, any interruption that lasts more than five minutes.

Unplanned interruption: The loss of electric power to one or more customers that does not result from a planned outage.