



A  Sempra Energy utility<sup>SM</sup>

# **ELECTRIC SYSTEM RELIABILITY ANNUAL REPORT**

**2004**



**Prepared for  
California Public Utilities Commission**

**February 28, 2005**

## EXECUTIVE SUMMARY

This Electric System Reliability Annual Report for 2004 has been prepared in response to CPUC Decision 96-09-045. This Decision established additional reliability recording, calculation, and reporting requirements for SDG&E.

The data in this report is presented in tabular form. All statistics and calculations include forced transmission, substation, and distribution outages, and exclude planned outages. Forced outages are those that are not prearranged. For the purposes of this report, sustained outages are those outages that lasted 5 minutes or more in duration, while momentary outages are those outages that lasted less than 5 minutes in duration.

The reliability indicators that are tracked are as follows:

1. SAIDI (System Average Interruption Duration Index) - minutes of sustained outages per customer per year.
2. SAIFI (System Average Interruption Frequency Index) - number of sustained outages per customer per year.
3. MAIFI (Momentary Average Interruption Frequency Index) - number of momentary outages per customer per year.

The measurement of each reliability performance indicator excludes CPUC major events and events that are the direct result of failures in the ISO-controlled bulk power market, or non-SDG&E owned transmission and distribution facilities. A Major Event is defined in CPUC Decision 96-09-045 as an event that meets at least one of the following criteria:

- (a) The event is caused by earthquake, fire, or storms of sufficient intensity to give rise to a state of emergency being declared by the government, or
- (b) Any other disaster not in (a) that affects more than 15% of the system facilities or 10% of the utility's customers, whichever is less for each event.

A summary of 2004 performance follows:

CRITERIA	SAIDI	SAIFI	MAIFI*
Including CPUC Major Events (2004)	93.19	0.67	0.61
Excluding CPUC Major Events (2004)	78.75	0.62	0.61
10-Year Average (1995-2004) Including CPUC Major Events	107.35	0.87	0.95
10-Year Average (1995-2004) Excluding CPUC Major Events	72.18	0.76	0.95

\*A 9-year average is used for MAIFI calculations.

The CPUC Major Events that were declared in 2004 are shown in the following table.

Month/Day	SAIDI	SAIFI	Sustained Customer Impact	MAIFI	Momentary Customer Impact	Reason for Outage
June 17	0.00	0.0000	6	-	-	Cabrillo Bridge Fire - CDF Request to De-energize
July 18	0.02	0.0002	246	-	-	Boulevard Brush Fire - CDF Request to De-energize
July 21	0.00	0.0000	18	-	-	National City Structure Fire - CDF Request to De-energize
July 26	0.00	0.0000	31	-	-	SCE Outage - Non-SDG&E Facilities
December 28 - 31	14.41	0.0565	74,000	0.0044	21,431	December Storm - Declaration of State of Emergency

In 2004, no customers within SDG&E's service territory experienced more than one 5 minute (or longer) outage per month on a rolling annual average basis, after exclusion of CPUC Major Events.

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**HISTORICAL SYSTEM RELIABILITY DATA**

Year	All Interruptions Included			CPUC Major Events Excluded				
	SAIDI	SAIFI	MAIFI	SAIDI	SAIFI	MAIFI	No. of Events	Event Cause(s)
1995	98.5	0.87	N/A	56.9	0.72	N/A	1	Storm/winds
1996	133.9	1.48	1.53	81.9	1.04	1.53	1	Underfrequency condition
1997	89.3	0.93	1.41	89.3	0.93	1.41	0	
1998	91.6	0.94	1.09	91.6	0.94	1.09	0	
1999	65.2	0.67	0.80	65.2	0.67	0.80	0	
2000	51.9	0.57	0.75	51.9	0.57	0.75	0	
2001	68.5	0.87	0.87	52.9	0.64	0.86	7	Fires (2), Load Curtailment (4), and Interruptions Due to Non-SDG&E Facilities (1)
2002	82.5	0.81	0.61	77.2	0.81	0.61	4	Fires (2), Interruptions Due to Non-SDG&E Facilities (2)
2003	298.9	0.86	0.87	76.1	0.72	0.84	2	Firestorm 2003, Storm Affecting >15% of Facilities
2004	93.2	0.67	0.61	78.8	0.62	0.61	5	Fires (3), Interruptions Due to Non-SDG&E Facilities (1), December Storm

**TEN LARGEST OUTAGE EVENTS IN 2004\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Dec. 28 - 31	December 2004 Storm	14.41	0.056	Yes	74,000	2,074	Not Available
2	Dec. 1	Substation - Equipment Failure	2.88	0.017	No	22,716	393	Not Available
3	Jun. 12	Substation - Animal Contact	2.16	0.011	No	14,708	204	Not Available
4	Jan. 23 - 24	Conductor Failure	1.88	0.003	No	3,951	625	Not Available
5	Sep. 30 - Oct. 1	Private Vehicle Contact	1.51	0.003	No	4,322	459	Not Available
6	Oct. 17 - 21	Storm / Winds	1.24	0.013	No	16,833	1,026	Not Available
7	Dec. 5	Private Vehicle Contact	1.14	0.005	No	6,292	276	Not Available
8	Dec. 5	Connector Failure	1.10	0.004	No	5,824	502	Not Available
9	Nov. 10	Transmission Equipment Failure	0.82	0.004	No	5,095	414	Not Available
10	Dec. 5 - 6	Storm / Winds	0.78	0.001	No	1,265	808	Not Available

\*Based on SAIDI impact.

**TEN LARGEST OUTAGE EVENTS IN 2003\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Oct. 26 - Nov. 25	Firestorm 2003	193.33	0.071	Yes	91,443	43,032	Not Available
2	Jan. 6 - 8	Storm / Winds	28.98	0.072	Yes	92,715	2,548	Not Available
3	Oct. 27 - 28	Substation - Animal Contact	3.10	0.017	No	22,285	227	Not Available
4	Dec. 25 - 26	Storm / Winds	3.00	0.017	No	21,611	1,303	Not Available
5	May 14 - 15	Transmission Line - Heavy Equipment Contact (Crane)	1.47	0.002	No	2,900	1,832	Not Available
6	Mar. 28 - 30	Storm / Winds	1.25	0.003	No	3,767	1,440	Not Available
7	Sep. 2 - 3	Storm / Winds	1.06	0.014	No	18,025	678	Not Available
8	Oct. 5 - 6	Underground Cable Failure	0.97	0.004	No	5,255	841	Not Available
9	Jan. 12	Substation - Animal Contact	0.97	0.014	No	17,990	73	Not Available
10	Sep. 19 - 20	Underground Cable Failure	0.88	0.004	No	5,334	1,010	Not Available

\*Based on SAIDI impact.



**TEN LARGEST OUTAGE EVENTS IN 2002\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected **	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Feb. 27	Accidental Trip of Circuit Breaker	6.00	0.173	No	219,522	62	Not Available
2	Feb. 9 - 11	Storm / Winds	3.41	0.023	No	28,987	1,587	Not Available
3	Feb. 10 - 13	Fallbrook (Gavilan) Fire - Request by CDF	2.99	0.003	Yes	3,732	4,107	Not Available
4	Aug. 31 - Sep. 3	Storm / Heat	2.94	0.023	No	28,836	775	Not Available
5	July 29 - Aug. 12	Pines Wildland Fire - State of Emergency	2.34	0.003	Yes	3,498	10,227	Not Available
6	Nov. 25 - 30	Storm / Winds	2.16	0.014	No	18,108	1,493	Not Available
7	Apr. 5	Circuit Breaker Failure	1.79	0.008	No	10,591	306	Not Available
8	Apr. 22 - 23	Crossarm Failure	1.35	0.004	No	5,219	603	Not Available
9	Dec. 16 - 18	Storm / Winds	1.23	0.008	No	10,078	1,106	Not Available
10	July 23 - 24	Switch Faulted / Mechanical	1.07	0.006	No	7,284	586	Not Available

\* Based on SAIDI impact.

\*\* Total Number of Customers Affected were reported incorrectly in 2002. These values have been updated for 2003; the adjustment had no affect on the reported SAIDI and SAIFI Impacts for these events.

**TEN LARGEST OUTAGE EVENTS IN 2001\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Mar. 19	Load curtailment - ISO request	10.91	0.153	Yes	191,146	164	Not available
2	Mar. 20	Load curtailment - ISO request	3.74	0.063	Yes	78,446	71	Not available
3	July 17	Remedial Action Scheme inadvertently interrupted customers	1.21	0.121	No	150,959	40	Not available
4	May 22	Substation - Animal contact	0.79	0.009	No	11,238	88	Not available
5	Jan. 11-12	Storm/winds	0.73	0.006	No	6,988	1,886	Not available
6	Feb. 13	Storm/winds	0.70	0.003	No	3,541	728	Not available
7	Apr. 7	Private vehicle contact	0.69	0.002	No	1,939	874	Not available
8	May 29	Transmission Line - Bird contact	0.66	0.012	No	14,996	120	Not available
9	May 8	Load curtailment - ISO request	0.64	0.012	Yes	14,730	81	Not available
10	Jan. 10	Underground cable failure	0.64	0.002	Yes	2,330	499	Not available

\*Based on SAIDI impact.

**TEN LARGEST OUTAGE EVENTS IN 2000\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Sept. 7-8	Lightning/Storm	2.59	0.011	No	13,258	925	Not available
2	Aug. 29	Transmission poles down due to storm	2.33	0.004	No	4,363	1,301	Not available
3	Aug. 20	Underground cable failure	1.55	0.004	No	4,624	823	Not available
4	Oct. 30	Substation animal contact	1.36	0.009	No	11,240	149	Not available
5	Feb. 20-21	Storm/winds	1.13	0.012	No	15,092	648	Not available
6	Mar. 5	Storm/winds	0.72	0.007	No	8,593	393	Not available
7	Apr. 17	Storm/winds	0.69	0.007	No	8,769	690	Not available
8	Apr. 4	Circuit breaker faulted	0.69	0.017	No	20,544	41	Not available
9	Sept. 15	Underground cable failure	0.68	0.003	No	4,223	364	Not available
10	Oct. 5	Underground cable failure	0.68	0.002	No	2,798	558	Not available

\*Based on SAIDI impact.

**TEN LARGEST OUTAGE EVENTS IN 1999\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Sept. 27	Circuit breaker failure	4.29	0.02	No	22,658	375	Not available
2	Aug. 6	Underground cable	1.71	0.01	No	6,965	822	Not available
3	Oct. 21	Animal contact	1.29	0.01	No	12,520	158	Not available
4	Jan. 29	Private vehicle contact	1.00	0.01	No	6,312	1,215	Not available
5	Apr. 1	Switch faulted/mechanical	0.96	0.01	No	6,402	304	Not available
6	Apr. 4	Capacitor failure	0.92	0.00	No	4,555	269	Not available
7	Apr. 6-7	Storm/winds	0.84	0.01	No	7,000	1,719	Not available
8	Jun. 12	Animal contact	0.75	0.00	No	5,642	163	Not available
9	Nov. 11	Relay malfunction	0.72	0.01	No	15,391	57	Not available
10	Sept. 26	Underground cable failure	0.69	0.00	No	2,800	365	Not available

\*Based on SAIDI impact.

**TEN LARGEST OUTAGE EVENTS IN 1998\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Aug. 31-Sept. 1	Storm/lightning/winds/heat storm	6.29	0.02	No	28,987	1,577	Not available
2	Feb. 23-24	Storm/winds	4.63	0.04	No	51,540	1,297	Not available
3	Aug. 29-30	Heat Storm	3.69	0.03	No	35,526	889	Not available
4	Feb. 7-8	Storm/winds	3.10	0.02	No	22,680	946	Not available
5	Feb. 14-15	Storm/winds	2.69	0.03	No	35,851	1,025	Not available
6	Dec. 6	Storm/winds	2.59	0.03	No	31,208	966	Not available
7	Sept. 2-3	Storm/lightning/winds	2.10	0.02	No	24,793	1,172	Not available
8	Mar. 28-29	Storm/winds	2.09	0.01	No	17,450	1,557	Not available
9	Feb. 3-4	Storm/winds	1.36	0.02	No	22,303	456	Not available
10	Feb. 6	Storm/winds	1.25	0.02	No	18,443	1,512	Not available

\*Based on SAIDI impact.

**TEN LARGEST OUTAGE EVENTS IN 1997\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Sept. 24-25	Storm/winds	5.75	0.06	No	67,036	4,413	Not available
2	Dec. 10	Storm/winds	4.23	0.03	No	31,909	773	Not available
3	Dec. 11	Storm/winds	2.91	0.03	No	35,698	814	Not available
4	Nov. 26	Storm/winds	2.85	0.02	No	27,486	1,224	Not available
5	Jan. 6-7	Storm/winds	2.77	0.04	No	42,307	803	Not available
6	Jan. 12-13	Storm/winds	2.04	0.01	No	17,033	1,134	Not available
7	Jan. 26	Storm/winds	1.99	0.03	No	29,612	589	Not available
8	Nov. 10	Storm/winds	1.67	0.03	No	34,685	765	Not available
9	July 6	Hardware failure - substation	1.54	0.02	No	18,948	508	Not available
10	Dec. 6	Storm/winds	1.07	0.01	No	14,310	656	Not available

\*Based on SAIDI impact.

**TEN LARGEST OUTAGE EVENTS IN 1996\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Aug. 10	Underfrequency load shed condition	51.93	0.44	Yes	517,884	428	35
2	Oct. 21-22	Storm/high winds	7.47	0.04	No	51,708	2,172	Not available
3	Dec. 15-18	Storm/high winds	5.84	0.06	No	72,492	1,609	Not available
4	Feb. 25-26	Storm/high winds	3.69	0.04	No	49,455	2,243	Not available
5	Jan. 1-2	Storm/high winds	2.94	0.03	No	39,892	1,168	Not available
6	July 4	Faulted transmission cable	2.90	0.03	No	40,297	435	Not available
7	Nov. 21-22	Storm/high winds	2.36	0.02	No	28,368	647	Not available
8	July 2	Underfrequency load shed condition	2.19	0.08	No	96,019	57	Not available
9	Oct. 30	Storm/high winds	1.72	0.02	No	26,699	416	Not available
10	Dec. 28	Transformer faulted - substation	1.47	0.02	No	19,635	115	Not available

\*Based on SAIDI impact.

**TEN LARGEST OUTAGE EVENTS IN 1995\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Jan. 4-6	Storm/winds	41.60	0.14	Yes	166,940	2,042	Not available
2	Sept. 2	OCB faulted/mechanical	3.02	0.02	No	18,757	860	Not available
3	Mar. 11	Storm/winds	2.19	0.02	No	28,405	1,104	Not available
4	Mar. 5	Storm/winds	1.21	0.01	No	13,263	1,326	Not available
5	Jan. 18	Undetermined	1.12	0.01	No	16,171	217	Not available
6	Feb. 19-21	Storm/winds	1.07	0.01	No	15,977	590	Not available
7	July 16	Storm/winds	1.04	0.01	No	10,683	553	Not available
8	Mar. 21	Storm/winds	1.02	0.01	No	9,735	308	Not available
9	July 17	Fire	0.98	0.04	No	41,212	342	Not available
10	Nov. 19	Vehicle contact	0.96	0.01	No	6,905	381	Not available

\*Based on SAIDI impact.



**EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2004**

**EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day*								
			2	4	6	8	10	12	14	16	18
December 28 - 31	December Storm - Declaration of State of Emergency	74,000	0	0	0	31	3,725	5	30	1,381	48,480
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>20</b>	<b>22</b>	<b>24</b>	<b>26</b>	<b>28</b>	<b>30</b>	<b>32</b>	<b>34</b>	<b>36</b>
			36,187	26,037	18,190	11,941	7,393	5,017	3,093	1,372	709
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>38</b>	<b>40</b>	<b>42</b>	<b>44</b>	<b>46</b>	<b>48</b>	<b>50</b>	<b>52</b>	<b>54</b>
			411	159	91	36	36	50	34	7	6
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>56</b>	<b>58</b>	<b>60</b>	<b>62</b>	<b>64</b>	<b>66</b>	<b>68</b>	<b>70</b>	<b>72</b>
			6	110	0	0	0	0	0	0	0

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

**EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2003**

**EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day*								
			2	4	6	8	10	12	14	16	18
January 6 - 8	January Storm - >15% of System Facilities Affected	92,715	0	165	2,374	3,500	5,231	4,985	2,916	4,272	33
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>20</b>	<b>22</b>	<b>24</b>	<b>26</b>	<b>28</b>	<b>30</b>	<b>32</b>	<b>34</b>	<b>36</b>
			2,908	2,875	299	8,799	42,386	62,337	44,408	34,801	29,472
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>38</b>	<b>40</b>	<b>42</b>	<b>44</b>	<b>46</b>	<b>48</b>	<b>50</b>	<b>52</b>	<b>54</b>
			23,942	18,661	7,533	4,709	3,687	3,391	2,489	1,563	1,077
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>56</b>	<b>58</b>	<b>60</b>	<b>62</b>	<b>64</b>	<b>66</b>	<b>68</b>	<b>70</b>	<b>72</b>
			1,021	648	581	92	94	69	69	37	37
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>74</b>	<b>76</b>	<b>78</b>	<b>80</b>	<b>82</b>	<b>84</b>	<b>86</b>	<b>88</b>	<b>90</b>
			25	25	0	0	0	0	0	0	0

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

**EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2003**  
**EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day*								
			0	5	10	15	20	25	30	35	40
October 26 - November 25	Firestorm 2003 - Declaration of State of Emergency	91,443	0	697	12,087	25,599	33,856	33,575	35,317	43,272	44,623
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>45</b>	<b>50</b>	<b>55</b>	<b>60</b>	<b>65</b>	<b>70</b>	<b>75</b>	<b>80</b>	<b>85</b>
			43,523	38,774	28,412	26,932	24,552	24,157	21,108	20,628	17,709
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>90</b>	<b>95</b>	<b>100</b>	<b>105</b>	<b>110</b>	<b>115</b>	<b>120</b>	<b>125</b>	<b>130</b>
			16,330	17,074	17,074	16,013	14,356	12,195	11,878	11,878	11,878
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>135</b>	<b>140</b>	<b>145</b>	<b>150</b>	<b>155</b>	<b>160</b>	<b>165</b>	<b>170</b>	<b>175</b>
			11,214	6,643	1,050	833	813	379	635	820	820
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>180</b>	<b>185</b>	<b>190</b>	<b>195</b>	<b>200</b>	<b>205</b>	<b>210</b>	<b>215</b>	<b>220</b>
			820	820	777	777	777	635	2,357	2,563	2,563
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>225</b>	<b>230</b>	<b>235</b>	<b>240</b>	<b>245</b>	<b>250</b>	<b>255</b>	<b>260</b>	<b>265</b>
			2,563	2,835	2,149	2,149	2,149	1,166	1,089	890	873
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>270</b>	<b>275</b>	<b>280</b>	<b>285</b>	<b>290</b>	<b>295</b>	<b>300</b>	<b>305</b>	<b>310</b>
			849	827	867	948	948	948	795	738	566
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
<b>315</b>	<b>320</b>	<b>325</b>	<b>330</b>	<b>335</b>	<b>340</b>	<b>345</b>	<b>350</b>	<b>355</b>			
535	535	432	432	432	432	432	324	312			
<b>Customers Interrupted - Hours Into the Event Day (continued)</b>											
<b>360</b>	<b>365</b>	<b>370</b>	<b>375</b>	<b>380</b>	<b>385</b>	<b>390</b>	<b>395</b>	<b>400</b>			
312	312	312	82	68	68	68	51	52			

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

**EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2003**

**EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day (continued)								
			405	410	415	420	425	430	435	440	445
October 26 - November 25	Firestorm 2003 - Declaration of State of Emergency	91,443	49	49	49	49	49	49	49	49	49
			Customers Interrupted - Hours Into the Event Day (continued)								
			49	49	49	49	48	48	48	48	48
			Customers Interrupted - Hours Into the Event Day (continued)								
			48	48	48	48	48	48	48	48	48
			Customers Interrupted - Hours Into the Event Day (continued)								
			47	47	47	47	47	47	47	47	47
			Customers Interrupted - Hours Into the Event Day (continued)								
			48	40	40	40	40	40	40	40	40
			Customers Interrupted - Hours Into the Event Day (continued)								
			9	9	9	9	9	9	9	9	9
			Customers Interrupted - Hours Into the Event Day (continued)								
			9	9	9	9	0	0	0	0	0

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

**EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2002**

**EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day*								
			2	4	6	8	10	12	14	16	18
February 10 - 13	Fallbrook (Gavilan) Fire - Request by CDF	3,732	0	0	0	0	0	0	2,083	3,732	2,592
			Customers Interrupted - Hours Into the Event Day (continued)								
			20	22	24	26	28	30	32	34	36
			2,083	1,008	1,008	1,008	1,008	1,008	1,008	1,008	1,008
			Customers Interrupted - Hours Into the Event Day (continued)								
			38	40	42	44	46	48	50	52	54
			871	871	871	762	762	762	762	762	762
			Customers Interrupted - Hours Into the Event Day (continued)								
			56	58	60	62	64	66	68	70	72
			762	762	762	762	762	728	728	728	728
			Customers Interrupted - Hours Into the Event Day (continued)								
			74	76	78	80	82	84	86	88	90
			19	19	19	19	0	0	0	0	0

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

**EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2002**

**EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day*								
			2	4	6	8	10	12	14	16	18
July 29 - August 12	Pines Wildland Fire - State of Emergency	3,498	0	0	0	0	0	0	0	3	3
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>20</b>	<b>22</b>	<b>24</b>	<b>26</b>	<b>28</b>	<b>30</b>	<b>32</b>	<b>34</b>	<b>36</b>
			338	338	338	338	338	338	338	338	866
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>38</b>	<b>40</b>	<b>42</b>	<b>44</b>	<b>46</b>	<b>48</b>	<b>50</b>	<b>52</b>	<b>54</b>
			794	794	338	338	338	338	338	338	338
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>56</b>	<b>58</b>	<b>60</b>	<b>62</b>	<b>64</b>	<b>66</b>	<b>68</b>	<b>70</b>	<b>72</b>
			338	338	338	338	338	338	338	338	338
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>74</b>	<b>76</b>	<b>78</b>	<b>80</b>	<b>82</b>	<b>84</b>	<b>86</b>	<b>88</b>	<b>90</b>
			338	338	338	338	338	338	338	338	3
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>92</b>	<b>94</b>	<b>96</b>	<b>98</b>	<b>100</b>	<b>102</b>	<b>104</b>	<b>106</b>	<b>108</b>
			3	3	3	3	3	3	3	0	0

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

**EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2002**

**EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day*								
			110	112	114	116	118	120	122	124	126
July 29 - August 12	Pines Wildland Fire - State of Emergency	3,498	0	0	0	0	0	0	10	10	10
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>128</b>	<b>130</b>	<b>132</b>	<b>134</b>	<b>136</b>	<b>138</b>	<b>140</b>	<b>142</b>	<b>144</b>
			10	10	10	10	10	10	10	10	10
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>146</b>	<b>148</b>	<b>150</b>	<b>152</b>	<b>154</b>	<b>156</b>	<b>158</b>	<b>160</b>	<b>162</b>
			10	10	10	10	10	10	10	10	10
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>164</b>	<b>166</b>	<b>168</b>	<b>170</b>	<b>172</b>	<b>174</b>	<b>176</b>	<b>178</b>	<b>180</b>
			10	10	10	258	258	258	258	258	258
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>182</b>	<b>184</b>	<b>186</b>	<b>188</b>	<b>190</b>	<b>192</b>	<b>194</b>	<b>196</b>	<b>198</b>
			258	258	258	258	258	258	258	258	258
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>200</b>	<b>202</b>	<b>204</b>	<b>206</b>	<b>208</b>	<b>210</b>	<b>212</b>	<b>214</b>	<b>216</b>
			258	258	258	258	258	258	258	258	258
			<b>Customers Interrupted - Hours Into the Event Day (continued)</b>								
			<b>218</b>	<b>220</b>	<b>222</b>	<b>224</b>	<b>226</b>	<b>228</b>	<b>230</b>	<b>232</b>	<b>234</b>
			258	258	258	258	224	224	224	224	224

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

**EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2002**

**EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day (continued)								
			236	238	240	242	244	246	248	250	252
July 29 - August 12	Pines Wildland Fire - State of Emergency	3,498	224	224	224	224	217	122	122	122	122
			Customers Interrupted - Hours Into the Event Day (continued)								
			254	256	258	260	262	264	266	268	270
			122	122	122	122	122	122	122	122	122
			Customers Interrupted - Hours Into the Event Day (continued)								
			272	274	276	278	280	282	284	286	288
			122	12	12	12	12	12	12	12	12
			Customers Interrupted - Hours Into the Event Day (continued)								
			290	292	294	296	298	300	302	304	306
			0	0	0	0	0	0	0	0	0
			308	310	312	314	316	318	320	322	324
			0	0	0	0	0	0	0	0	0
			Customers Interrupted - Hours Into the Event Day (continued)								
			326	328	330	332	334	336	338	340	342
			0	0	0	0	0	0	0	0	0
			Customers Interrupted - Hours Into the Event Day (continued)								
			344	346	348	350	352	354	356	358	360
			0	0	0	0	0	0	0	0	0

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.



**EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2001**

**EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day*								
			2	4	6	8	10	12	14	16	18
3/19/2001	Load curtailment - ISO request	191,146	0	0	0	0	0	30,590	68,143	28,067	0
			Customers Interrupted - Hours Into the Event Day (continued)								
			20	22	24	26	28	30	32	34	36
			0	0	0	0	0	0	0	0	0

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day*								
			2	4	6	8	10	12	14	16	18
3/20/2001	Load curtailment - ISO request	78,446	0	0	0	0	11,181	10,189	10,838	0	0
			Customers Interrupted - Hours Into the Event Day (continued)								
			20	22	24	26	28	30	32	34	36
			0	0	0	0	0	0	0	0	0

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

## EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2001

### EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day*								
			2	4	6	8	10	12	14	16	18
5/8/2001	Load curtailment - ISO request	14,730	0	0	0	0	0	0	0	7,409	0
			Customers Interrupted - Hours Into the Event Day (continued)								
			20	22	24	26	28	30	32	34	36
			0	0	0	0	0	0	0	0	0

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

**EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 1997 through 2000**

**EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

There were no CPUC Major Events from 1997 through 2000.

## EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 1996

### EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day for 8/10 Underfrequency*								
			2	4	6	8	10	12	14	16	18
August 10	Underfrequency load shed condition	517,884	55	319	202	12	12	0	0	483,510	116,846
			Customers Interrupted - Hours Into the Event Day (continued)								
			20	22	24	26	28	30	32	34	36
			759	600	6	6	0	0	0	0	0

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

**EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 1995**

**EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

Date of Outage	Description of Outage	Total Number of Customers Out of Service	Customers Interrupted - Hours Into the Event Day for Jan. 4-6 Storm*								
			2	4	6	8	10	12	14	16	18
Jan. 4-6	Storm/winds	166,940	0	0	55	55	0	55	2,719	14,554	61,661
			Customers Interrupted - Hours Into the Event Day (continued)								
			20	22	24	26	28	30	32	34	36
			68,596	45,355	36,717	33,323	24,191	15,336	15,341	15,465	14,288
			Customers Interrupted - Hours Into the Event Day (continued)								
			38	40	42	44	46	48	50	52	54
			13,589	5,425	5,095	5,749	4,237	4,022	3,165	2,810	326
			Customers Interrupted - Hours Into the Event Day (continued)								
			56	58	60	62	64	66	68	70	72
			229	135	135	50	50	110	135	25	25

\*Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

**CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2004**

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Data is based upon station outages as reported through SDG&E's Outage Management System.

**CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2003**

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	Northeast	212	62
February	Northeast	212	60
March	Northeast	212	60
April	Northeast	212	60
May	Northeast	212	60
June	Northeast	212	60
July	Northeast	212	60
August	Northeast	212	62
September	Northeast	212	62
October	Northeast	212	60
November	Northeast	212	60
December	N/A	N/A	None

Data is based upon station outages as reported through SDG&E's Outage Management System.

**CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2002**

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Data is based upon station outages as reported through SDG&E's Outage Management System.



**CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2001**

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Data is based upon station outages as reported through SDG&E's Outage Management System.

**CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2000**

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Data is based upon station outages as reported through SDG&E's Outage Management System.

**CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 1999**

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	Northeast	296	101
February	N/A	N/A	None
March	Northeast	221	111
April	Northeast	221	112
May	Northeast	221	112
June	Northeast	221	112
July	Northeast	221	112
August	Northeast	221	112
September	Northeast	221	112
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Data is based upon station outages as reported through SDG&E's Outage Management System.

**CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 1998**

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	Northeast	296	457
October	Northeast	296	64
November	N/A	N/A	None
December	N/A	N/A	None

Data is based upon station outages as reported through SDG&E's Outage Management System.

**CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 1997**

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	Northeast	CTL1	184
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	Orange County	766	545
October	Orange County	766	545
November	N/A	N/A	None
December	N/A	N/A	None

Data is based upon station outages as reported through SDG&E's Outage Management System.

**CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 1995 THROUGH 1996**

<b>Year</b>	<b>District</b>	<b>Circuit Number</b>	<b>Number of Customers Experiencing &gt;12 Sustained Outages</b>
1995	N/A	N/A	None
1996	N/A	N/A	None

Data for 1995-1996 is based upon station outages as reported through SDG&E's Outage Management System.