

2007 - Disturbance Index - Public

| Date | Region | Utilities | Type | MW | Customers | Cause |
|-----------|---------------|-----------|------|------|-----------|---|
| 13-Jan-07 | SERC | AMRN | INT | | 225000 | Weather - Snow, Freezing Rain |
| 23-Jan-07 | WECC-NWPP | BCTC | INT | 1000 | 100000 | Human Error - Substation, Result: Islanding |
| 30-Jan-07 | NPCC-Ontario | IESO | UO | 1700 | | Equipment Failure - Capacitor Explosion |
| 15-Feb-07 | SERC-VACAR | DUK | UO | | | System Protection - Relay Misoperation |
| 16-Feb-07 | WECC-RMPA | PACE | INT | 20 | 3261 | System Protection - Relay Misoperation |
| 24-Feb-07 | MRO | MISO | INT | 210 | 75000 | Weather - Ice Storm |
| 24-Feb-07 | MRO | MISO | INT | 400 | 140000 | Weather - Ice Storm |
| 28-Feb-07 | WECC-RMPA | PACE | INT | | 671189 | Weather - Snow and Rain |
| 01-Mar-07 | SERC-Entergy | EES | INT | 200 | 60408 | Weather - Storms |
| 01-Mar-07 | SERC-Southern | SOCO | INT | | 60408 | Weather - Tornadoes-Rain |
| 05-Apr-07 | NPCC-ISO-NE | ISNE | INT | | 117142 | Weather - Snow Storm |
| 05-Apr-07 | NPCC-ISO-NE | ISNE | INT | | 53000 | Weather - Snow Storm |
| 12-Apr-07 | WECC-CAMX | CISO | DR | | 158977 | Weather - Wind |
| 14-Apr-07 | NPCC-ISO-NE | ISNE | INT | | 70000 | Weather - Wind and Rain |
| 16-Apr-07 | SERC-VACAR | DUK | INT | | 125000 | Weather - Wind and Rain |
| 16-Apr-07 | NPCC-ISO-NE | ISNE | INT | | 81000 | Weather - Wind and Rain |
| 16-Apr-07 | NPCC-ISO-NE | ISNE | INT | | 127545 | Weather - Wind and Rain |
| 16-Apr-07 | SERC-VACAR | CPLE | INT | | 60000 | Weather - Wind and Rain |
| 16-Apr-07 | RFC | PJM | INT | | 56000 | Weather - Wind and Rain |
| 16-Apr-07 | RFC | PJM | INT | | 56000 | Weather - Wind and Rain |
| 16-Apr-07 | SERC-VACAR | VAP | DR | | 242000 | Weather - Wind and Rain |
| 05-May-07 | WECC-RMPA | IPCO | UO | 240 | | Human Error |
| 10-May-07 | WECC-NWPP | PGE | INT | 150 | 1 | Equipment Failure |
| 14-May-07 | WECC-NWPP | PGE | INT | 150 | 1 | Equipment Failure |
| 15-May-07 | RFC | MECS | INT | 500 | 66000 | Weather - High Wind Gusts and Rain |
| 16-May-07 | NPCC-ISO-NE | ISNE | INT | | 67000 | Weather - High Wind Gusts and Rain |
| 21-May-07 | WECC-NWPP | PGE | INT | 140 | 1 | Human Error |
| 23-May-07 | WECC-NWPP | BPAT | UO | | | Equipment Failure |
| 07-Jun-07 | WECC-NWPP | BPAT | UO | | | Human Error |
| 12-Jun-07 | NPCC-Ontario | IESO | VR | | | Voltage Reduction - Weather - Hot |

| Date | Region | Utilities | Type | MW | Customers | Cause |
|-----------|--------------|-----------|------|-----|-----------|---|
| 26-Jun-07 | NPCC-NYISO | NYIS | UO | 460 | | Weather – Lightening Strike |
| 27-Jun-07 | WECC-NWPP | BCTC | UO | | | Weather - Lightening Suspected |
| 28-Jun-07 | WECC-NWPP | BPAT | UO | 800 | | Equipment Failure - NON-Transmission System |
| 29-Jun-07 | WECC-AZNMSNV | SRP | INT | 399 | 98700 | Equipment Failure - EMS Load Shedding Tool |
| 03-Jul-07 | WECC-CAMX | CISO | PA | | | Public Appeal - Weather |
| 06-Jul-07 | WECC-NWPP | PACW | UO | 60 | | Weather – Storm and Fires |
| 07-Jul-07 | RFC | MECS | INT | | 69000 | Weather – Storm |
| 10-Jul-07 | NPCC-NYISO | NYIS | INT | | 300000 | Weather – Firm Load Shed |
| 15-Jul-07 | SERC-TVA | TVA | UO | 950 | | Equipment Failure |
| 16-Jul-07 | WECC-NWPP | PACW | UO | 306 | | Natural Disaster – Fires |
| 17-Jul-07 | RFC | CE | INT | | 90000 | Weather - Thunderstorms and High Wind |
| 19-Jul-07 | RFC | MECS | INT | | 60000 | Weather - Thunderstorms and High Wind |
| 19-Jul-07 | SERC-VACAR | VAP | INT | 72 | 107000 | Weather - Thunderstorms and High Wind |
| 31-Jul-07 | WECC-CAMX | CISO | UO | | | Equipment Failure |
| 04-Aug-07 | RFC | AEP | UO | | | Equipment Failure |
| 08-Aug-07 | SERC-VACAR | CPLE | PA | | | Public Appeal - Weather - Hot |
| 08-Aug-07 | RFC | PJM | VR | | | Voltage Reduction |
| 09-Aug-07 | SERC-VACAR | CPLE | PA | | | Public Appeal - Weather - Hot |
| 10-Aug-07 | SERC-VACAR | CPLE | PA | | | Public Appeal - Weather - Hot |
| 13-Aug-07 | SERC | AMRN | INT | | 63000 | Weather - Severe Storm - High Winds |
| 13-Aug-07 | WECC-CAMX | CISO | UO | | | Human Error |
| 14-Aug-07 | ERCOT | ERCO | INT | | 5 | Weather - Shed Interruptible Load |
| 18-Aug-07 | WECC-AZNMSNV | AZPS | UO | | | Equipment Failure - Relay Setting |
| 19-Aug-07 | SERC-VACAR | VAP | INT | 100 | 58500 | Weather - Storm - Rain - High Wind Gusts |
| 23-Aug-07 | RFC | CE | INT | | 300000 | Weather - Storm - Rain - High Wind Gusts |
| 24-Aug-07 | WECC-NWPP | AESO | UO | | | Animal Contact |
| 25-Aug-07 | SERC-VACAR | DUK | UO | | | Equipment Failure - Relay |
| 25-Aug-07 | RFC | MECS | INT | | 75000 | Weather - Storm - Rain - High Wind Gusts |
| 29-Aug-07 | WECC-CAMX | CISO | INT | 180 | 26000 | Animal Contact - VEGETATION |

| Date | Region | Utilities | Type | MW | Customers | Cause |
|-----------|-------------|-----------|------|------|-----------|--|
| 29-Aug-07 | WECC-CAMX | CISO | PA | | | Public Appeal - Weather- Hot |
| 31-Aug-07 | WECC-CAMX | CISO | PA | | | Public Appeal - Weather- Hot |
| 03-Sep-07 | WECC-CAMX | SDGE | PA | | | Weather – High Temperatures & Humidity |
| 04-Sep-07 | WECC-CAMX | SDGE | PA | | | Weather – High Temperatures & Humidity |
| 05-Sep-07 | ERCOT | ERCO | UO | 1084 | | Equipment Failure-Relay |
| 13-Sep-07 | SPP | EES | INT | | 118000 | Weather – Hurricane Humberto |
| 15-Sep-07 | NPCC-HQ | HQT | UO | | | Equipment Failure - Fire |
| 17-Sep-07 | RFC | IPL | INT | | 9600 | Equipment Failure - Relay |
| 18-Sep-07 | MRO | MISO | INT | 4700 | 6000 | Electrical System Separation – Islanding |
| 18-Sep-07 | MRO | MISO | INT | | n/a | Electrical System Separation – Islanding |
| 18-Sep-07 | MRO | MISO | INT | | n/a | Electrical System Separation – Islanding |
| 18-Sep-07 | MRO | MISO | INT | 896 | n/a | Electrical System Separation – Islanding |
| 24-Sep-07 | RFC | MECS | UO | 320 | | Equipment Failure – Condensate Vacuum |
| 03-Oct-07 | NPCC-HQ | HQT | UO | | | Human Error - Line Load Limit Exceeded |
| 07-Oct-07 | WECC-CAMX | CISO | INT | 10 | 2500 | Distribution Transformer Failure - Squirrel |
| 10-Oct-07 | WECC-CAMX | CISO | INT | 15 | 7500 | Weather - High Wind Gusts |
| 15-Oct-07 | WECC-RMPA | PACE | UO | | | Off-Normal Operation – Specific Cause Being Investigated |
| 18-Oct-07 | WECC-NWPP | PSEI | INT | | 160000 | Weather - High Wind Gusts |
| 22-Oct-07 | WECC-CAMX | CISO | INT | 451 | 90323 | Fires - Brush Fires |
| 24-Oct-07 | WECC-CAMX | CISO | PA | | | Public Appeal - Conservation |
| 24-Oct-07 | WECC-CAMX | CISO | PA | | | Public Appeal - Conservation |
| 26-Oct-07 | WECC-CAMX | CISO | UO | | | Fires - Brush Fires - Firm Load Shed |
| 26-Oct-07 | WECC-CAMX | CISO | UO | 280 | | Equipment Failure – Breaker |
| 26-Oct-07 | WECC-CAMX | CISO | INT | 240 | 90323 | Fires - Line Load Limits Exceeded |
| 03-Nov-07 | NPCC-ISO-NE | ISNE | INT | | 170000 | Weather - Tropical Storm Noel |
| 04-Nov-07 | NPCC-HQ | HQT | INT | | 20000 | Weather - Tropical Storm Noel |
| 11-Nov-07 | WECC-NWPP | BCTC | INT | | 244000 | SPS Failure - Update Error |
| 12-Nov-07 | WECC-NWPP | BPAT | INT | | 100000 | Weather - High Wind Gusts - Rain |

| Date | Region | Utilities | Type | MW | Customers | Cause |
|-----------|--------------|-----------|------|-----|-----------|--|
| 16-Nov-07 | NPCC-ISO-NE | ISNE | UO | | | Equipment Failure - Static Wire |
| 27-Nov-07 | WECC-RMPA | PACE | UO | | | Animal Contact - Bird Droppings |
| 30-Nov-07 | WECC-RMPA | PACE | UO | | | Animal Contact - Bird Droppings |
| 01-Dec-07 | WECC-CAMX | CISO | INT | | 40454 | Weather - Wind and Rain Storm |
| 02-Dec-07 | WECC-NWPP | BPAT | INT | 125 | 33000 | Weather - Wind and Rain Storm |
| 02-Dec-07 | NPCC-ISO-NE | ISNE | UO | | | Fuel Supply Problems - Gas Supply Interruption |
| 03-Dec-07 | SERC-VACAR | SPA | UO | | | Equipment Failure - Switch |
| 10-Dec-07 | SPP | OKGE | INT | 800 | 256663 | Weather - Ice Storm |
| 10-Dec-07 | NPCC-ISO-NE | ISNE | UO | | | Equipment Failure - Dedicated Path Logic |
| 11-Dec-07 | SPP | OKGE | INT | 500 | 95000 | Weather - Ice Storm |
| 12-Dec-07 | ERCOT | ERCO | UO | | | System Protection |
| 12-Dec-07 | WECC-AZNMSNV | PNM | UO | | | Equipment Failure - Breaker Fault |
| 13-Dec-07 | RFC | PJM | UO | | | Equipment Failure - Feeder Fault |
| 16-Dec-07 | RFC | PJM | INT | | 176000 | Weather - Ice Storm |
| 22-Dec-07 | ERCOT | ERCO | UO | | | Equipment Failure |
| 23-Dec-07 | RFC | CE | INT | | 69000 | Weather - Ice Storm |

2007 - Number of Disturbances by Region - Public

| Region | Disturbances |
|--------------------------------------|--------------|
| ERCOT | 4 |
| MRO | 6 |
| NPCC-HQ | 3 |
| NPCC-ISO-NE | 10 |
| NPCC-NYISO | 2 |
| NPCC-Ontario | 2 |
| RFC | 15 |
| SERC | 2 |
| SERC-Entergy | 1 |
| SERC-Southern | 1 |
| SERC-TVA | 1 |
| SERC-VACAR | 11 |
| SPP | 3 |
| WECC-AZNMSNV | 3 |
| WECC-CAMX | 18 |
| WECC-NWPP | 15 |
| WECC-RMPA | 6 |
| Total Number of Disturbances: | 103 |

2007 - DAWG Disturbance Reports - Public

Date: Saturday, January 13, 2007 **Time:** 05:00 CST

RegionID: MAIN **Ctrl Area:** AMRN

AssociatedUtilities: Ameren Corp., St Louis, MO area, States of Missouri and Illinois **Type:** INT

Cause: Weather - Snow, Freezing Rain **Cause Category:** Weather

MW: **Customers:** 225000 **Customer Demand**

Restoration: Initial 1/20/2007 12:00:01 AM **Final -** 1/18/2007 8:00:00 AM

Event Description - Public

DESCRIPTION: Freezing rain began in the Mid-West the evening of 1/12/07 resulted in power outages well in excess of 100,000 customers and roughly 10,000 customers in two respective states. Restoration efforts began the morning of 1/13. Intermittent freezing rains are expected to continue over the four days. Weather forecast indicate high daily temperatures with freezing temperatures overnight. Ice formations are expected to be significant.

In total, there were three waves of freezing rain. The storm center (EOC) closed its doors on 1/19 since less than 1,000 customers were out of service and none of these outages were part of the original icing event.

REPORT CRITERIA: OE-417 DOE #11 - Alert Notice

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, January 23, 2007 **Time:** 13:46 PST

RegionID: WECC-NWPP **Ctrl Area:** BCTC

AssociatedUtilities: British Columbia Transmission Company **Type:** INT
(BCTC)

Cause: Human Error - Substation, Result: **Cause Category:** Human Error
Islanding

MW: 3050 **Customers:** 100000 **Customer Demand** 1000

Restoration: Initial **Final -** 1/23/2007 5:00:00 PM

Event Description - Public

DESCRIPTION: On 1/23/2007 at 1:46 PM, an operator error at Substation A resulted in the lost 3-500 KV North-South transmission lines separating the utility from the Interconnection.. Also lost were 2,935 MW of generation and the loss of ~1,000 MW of load and causing ~90,000 customers to be out of service. The system frequency decreased to 59.784 Hz from 59.992 Hz. The frequency North of the separated area increased to 62.5 Hz from 59.992 Hz. The frequency in the island West of the affected area increased to 60.47 Hz from 59.992 Hz.

Restoration commenced at 3:08 PM. At ~3:20 PM the Reliability Coordinator (RC) reported that the Reserve Sharing system had received a request for 1,275 MW of assistance and provided 1,093 MW due to maximum tie line capability going north at the time. At 6:00 PM, the RC reported that restoration of the 3-500-kV lines occurred at the 3:08 PM time reported above. The initial information of EMS and/or AGC control problems at islanded area were caused by the loss of telemetry from Substation A because it was in the dark and the system was split North and South. No EMS or AGC problems exist at time of restoration. REPORT CRITERIA: OE-417 DOE #4, #5

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, January 30, 2007 **Time:** 06:23 EST

RegionID: NPCC-Ontario **Ctrl Area:** IESO

AssociatedUtilities: Independent Electricity Market Operator **Type:** UO
(IMO)

Cause: Equipment Failure - Capacitor **Cause Category:** Equipment Failure
Explosion

MW: 54 **Customers:** **Customer Demand** 1700

Restoration: Initial **Final -** 1/30/2007 12:45:00 PM

Event Description - Public

DESCRIPTION: On 1/30/2007 at 6:23 am, when switching a 230 kV capacitor, the capacitor failed explosively. The 230 kV bus and circuit were removed from service with normal protection operation. The fault caused instantaneous load loss of approximately 1,700 MW of generation. No load was tripped. The resultant large ACE was reduced to zero by 6:27 am. By 7:20 all coincident load appeared to be back on and normal load pick up was occurring. Digital Fault Recorder operation was reported by adjacent control areas. The extent of damage is not known at this time. REPORT CRITERIA: OE-417 N/A; NERC EOP-004 filed.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, February 15, 2007 **Time:** 16:54 EST

RegionID: SERC **Ctrl Area:** DUK

AssociatedUtilities: Duke Energy - Carolinas BA **Type:** UO

Cause: System Protection - Relay **Cause Category:** Sys. Prot.
Misoperation

MW: 1743 **Customers:** **Customer Demand**

Restoration: Initial 2/15/2007 4:54:24 PM **Final -** 2/15/2007 4:57:52 PM

Event Description - Public

DESCRIPTION: The sequence of events are being gathered and preliminary indications are that the two 230 kV lines tripped and reclosed causing the frequency disturbance from 59.991 to 59.941 Hz. NERC EOP-004 report filed.

**Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available**

Date: Friday, February 16, 2007 **Time:** 06:46 EST

RegionID: WECC-NWPP **Ctrl Area:** PACE

AssociatedUtilities: PacifiCorp **Type:** INT

Cause: System Protection - Relay **Cause Category:** Sys. Prot.
Misoperation

MW: 411 **Customers:** 3261 **Customer Demand** 20

Restoration: Initial **Final -** 2/16/2007 10:41:00 AM

Event Description - Public

DESCRIPTION: On 2/16/2007 at 6:46 am, on a 230 kV transmission line, an A-phase to ground fault caused by a broken guy wire occurred. The line opened at one end correctly, the other did not. Due to this failure, 410 MW of generation, at several units, were tripped off-line, and all 230 kV and 115 kV lines into the station were tripped by back-up protection. The disturbance caused loss of supply to 3,261 customers. All lines and equipment were restored within 3 hours, except for one 230 kV line which remained out of service pending further breaker and relay tests. Summary report filed.

The cause of the failure was the inability of the relays to detect the fault and open the breakers. The matter is under investigation and the 230 kV line will remain out of service until this is resolved.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Saturday, February 24, 2007 **Time:** 16:00 CST

RegionID: MAIN **Ctrl Area:** MISO

AssociatedUtilities: MidAmerican Energy Company; NE **Type:** INT
quarter of Iowa and Rock Island, IL area

Cause: Weather - Ice Storm **Cause Category:** Weather

MW: **Customers:** 75000 **Customer Demand** 210

Restoration: Initial 3/3/2007 12:00:00 PM **Final -** 2/28/2007 12:00:00 PM

Event Description - Public

DESCRIPTION: In the am of 2/24/2007, freezing rain and high winds in the utilities service territory began causing distribution customer outages. Weather conditions continued to deteriorate throughout the day resulting in increasing levels of damage to the utilities electric transmission and distribution systems. By 4 PM on 2/24, approximately 54,000 customers were without power. The storm continued to cause damage and it is estimated that customer outage count peaked near 75,000 customers at approximately 3 AM on 2/25. Service crews and the Control Center began restoring power immediately and the number of customers without power dropped back down to approximately 50,000 around 6 PM on 2/25. By 11 AM on 2/26, power had been restored to all but approximately 34,500 customers. All available utility personnel, as well as contract crews, are working to restore service.

On 2/28 MidA has 1,310 outside assistance personnel working to repair storm damaged areas. The outside assistance personnel consist of 900 contract or surrounding utility crewmen, 260 reassigned MidA crewmen and 150 contract tree crewmen. The total number of customers without power is expected to be 3700 by midnight 2/28. Although there was damage to a number of high voltage (100 kV and above) transmission lines, no reportable System Operating Limits occurred.

It is estimated that all customer power outages related to the incident will be restored by midnight 3/3. A preliminary completion date for the damaged sections of 345 kV transmission lines is August of 2007. This line is a jointly owned line that is not operated by subject utility. **REPORT CRITERIA:** OE#-417 #11.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, February 28, 2007 **Time:** 00:45 PST

RegionID: WECC-NWPP **Ctrl Area:** PACE

AssociatedUtilities: Pacific Gas & Electric, Northern CA **Type:** INT

Cause: Weather - Snow and Rain **Cause Category:** Weather

MW: 110 **Customers:** 671189 **Customer Demand**

Restoration: Initial 3/2/2007 3:00:00 PM **Final -** 3/2/2007 8:45:00 PM

Event Description - Public

DISTURBANCE: On 2/22/2007 a major winter storm struck the Northern California coast depositing significant snow levels in the low-elevation and mountainous areas. Along the coastal range to elevation 1,000, snow levels were low, about 1 foot. In the mountain areas, at the 6,000 foot elevation, snow deposits were 5-10 feet. Low elevation areas of the utilities service territory received light to moderate rain. At about 12:45 am on 2/25, distribution outages impacted more than 50,000 customers. However, throughout the storm period more than 671,000 customers were impacted.

Several generators operated by the utility were affected as were several cogenerators that provide service to the utility. No high voltage transmission lines were affected. There were 8 - 115 kV lines that were affected and 16 - 60 KV lines. DOE Schedule 1 Alert Notice: #11.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, April 05, 2007 **Time:** 09:20 EST

RegionID: NPCC **Ctrl Area:** ISNE

AssociatedUtilities: ISO-New England; Maine, Central Maine **Type:** INT
Power

Cause: Weather - Snow Storm **Cause Category:** Weather

MW: **Customers:** 117142 **Customer Demand**

Restoration: Initial **Final -** 4/6/2007 1:10:00 PM

Event Description - Public

DESCRIPTION: An April 5, 2007 spring snow storm dumped 1-2 ft of heavy wet snow. This resulted in falling trees taking out multiple distribution and sub-transmission circuits. Customer outages exceeded 50,000 at 9:20 am on 4/5 and peaked at 117,142 customers at 12:34 PM on 4/5. Restoration efforts reduced customer outages to less than 50,000 at 1:10 PM on 4/6 (49,851). Restoration for remaining customers will continue through the weekend.

CAUSE/ACTION: Heavy Snow Storm, Repaired/Restored

THRESHOLD CRITERIA: DOE# 11. Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, April 05, 2007 **Time:** 13:00 EST

RegionID: NPCC **Ctrl Area:** ISNE

AssociatedUtilities: ISO-New England; New Hampshire, PS of NH **Type:** INT

Cause: Weather - Snow Storm **Cause Category:** Weather

MW: **Customers:** 53000 **Customer Demand**

Restoration: Initial 4/5/2007 1:00:00 PM **Final -** 4/5/2007 1:00:00 PM

Event Description - Public

DESCRIPTION: On April 5, 2007, wide spread snow. wind storm affected the Northeast section of the US. A regional utility had over 53,000 distribution customers out of service for one hour or more from approximately 9 am to 1 PM on 4/5. Restoration and repair of the distribution system is proceeding.

CAUSE/ACTION: Weather, Repaired/Restored

THRESHOLD CRITERIA: DOE# 11. Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, April 12, 2007 **Time:** 12:32 PST

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: LADWP, City of Los Angeles, California **Type:** DR

Cause: Weather - Wind **Cause Category:** Weather

MW: 200 **Customers:** 158977 **Customer Demand**

Restoration: Initial 4/15/2007 12:01:00 AM **Final -** 4/12/2007 9:02:00 PM

Event Description - Public

DESCRIPTION: On Thursday April 12, 2007 a weather front moved through utilities service area bringing high winds and rain. The distribution system had 79 5-kV feeders relay to lock-out. The Sub-Transmission System had 14 34.5-kV circuits relay to lock-out. A total of 158,977 customers were without power for a period of time with a maximum of 111,000 customers out simultaneously. Utility crews went to extended shift supplemented by contract crews to hasten restoration. There was no impact to generation or transmission assets.

Load Demand Lost: 200 MW; 158,977 total out (111,000 maximum)

CAUSE/ACTION: Major Distribution System Interruption, Weather or Natural Disaster, Repaired/Restored, Implemented a Warning, Alert, or Contingency Plan

THRESHOLD CRITERIA: DOE# 11. Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Saturday, April 14, 2007 **Time:** 09:00 EST

RegionID: NPCC **Ctrl Area:** ISNE

AssociatedUtilities: National Grid New England Control Center **Type:** INT
/ REMVEC

Cause: Weather - Wind and Rain **Cause Category:** Weather

MW: **Customers:** 70000 **Customer Demand**

Restoration: Initial **Final -** 4/14/2007 11:00:00 AM

Event Description - Public

DESCRIPTION: On April 16, 2007 a spring storm with high winds, snow, and rain. High winds associated with a storm system that moved through the area Monday resulted in damage and loss of multiple distribution circuits in the utilities service area. At the height of the storm customer outages ranged from 50,000 – 70,000 for approx. 2 hours.

CAUSE/ACTION: Major Distribution System Interruption, Weather or Natural Disaster, Repaired/Restored

THRESHOLD CRITERIA: DOE# 11. Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, April 16, 2007 **Time:** 08:00 EST

RegionID: SERC **Ctrl Area:** DUK

AssociatedUtilities: Duke Energy Carolinas, Piedmont and **Type:** INT
Mountains of NC and SC

Cause: Weather - Wind and Rain **Cause Category:** Weather

MW: 1000 **Customers:** 125000 **Customer Demand**

Restoration: Initial 4/19/2007 5:00:00 PM **Final -** 4/16/2007 8:00:00 PM

Event Description - Public

DESCRIPTION: Strong gusty northwest winds developed across the mountains, foothills and piedmont counties as a very strong storm system spins off New England. The strong pressure gradient will result in sustained winds between 20 to 30 MPH with gust to 50 MPH from the foothills eastward across the piedmont counties. In the higher elevations of the NC Mountain counties gust to 60 MPH will occur at times today. Numerous power outages occurred across the Duke Energy Carolinas Service Area as the combination of high winds with leaves on the trees results in broken limbs and some scattered downed trees. Restoration efforts in the hardest hit areas are expected to continue through the end of the week. More than 217,500 customers experienced outages at peak Monday as wind gusts from 40 to 60 MPH swept through the Carolinas. Damage from storm resulted in uprooted trees, broken utility poles and downed power lines.

1,000 MW of Demand; 125,000 at 4/16/2007 8:00:00 AM

1,100 MW of Demand; 217,500 at 4/16/2007 8:00:00 PM

CAUSE/ACTION: Major Distribution System Interruption, Weather Related,
Repaired/Restored

THRESHOLD CRITERIA: DOE# 11. Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, April 16, 2007 **Time:** 10:00 EST

RegionID: NPCC **Ctrl Area:** ISNE

AssociatedUtilities: ISO-New England, New Hampshire **Type:** INT

Cause: Weather - Wind and Rain **Cause Category:** Weather

MW: **Customers:** 81000 **Customer Demand**

Restoration: Initial **Final -** 4/16/2007 10:00:00 PM

Event Description - Public

DESCRIPTION: On April 16, 2007 a spring storm with snow, wind and heavy rains causing customer outages of greater than 81,000 by 11:15 AM in the utilities service area. Customer restorations in progress at this time. The estimated time to restore the system is up to 12 hours.

CAUSE/ACTION: Major Distribution System Interruption, Weather or Natural Disaster, Repaired/Restored

THRESHOLD CRITERIA: DOE# 11. Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, April 16, 2007 **Time:** 10:14 EST

RegionID: NPCC **Ctrl Area:** ISNE

AssociatedUtilities: ISO-New England, Central Maine Power **Type:** INT

Cause: Weather - Wind and Rain **Cause Category:** Weather

MW: **Customers:** 127545 **Customer Demand**

Restoration: Initial **Final -** 4/18/2007 10:18:00 PM

Event Description - Public

DESCRIPTION: On April 16, 2007 a spring storm with snow , wind and heavy rains causing customer outages of greater than 50,000 by 10:14 am. All outages at time of report are on the 34 KV sub transmission and distribution system. Peak customer outage of 127,545 at 10:18 PM on 4/16. Customer outages went below 50,000 at 2:35 AM on 4/18. All outages are on the 34 KV sub transmission and distribution system. CAUSE/ACTION: Major Distribution System Interruption, Weather or Natural Disaster, Repaired/Restored THRESHOLD CRITERIA: DOE# 11. Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, April 16, 2007 **Time:** 11:00 EST

RegionID: SERC **Ctrl Area:** CPLE

AssociatedUtilities: Progress Energy Service Territory in North **Type:** INT
and South Carolina

Cause: Weather - Wind and Rain **Cause Category:** Weather

MW: **Customers:** 60000 **Customer Demand**

Restoration: Initial **Final -** 4/16/2007 7:00:00 PM

Event Description - Public

DESCRIPTION: On April 16, 2007 a spring storm with gusty high winds and rain entered the utilities service territory. The storm was the result of an intense low pressure in the Northeast United States. PE-C is experiencing distribution level outages. As of 11:00 AM there were approximately 60,000 customers without electric service.

As of 7:00 PM on 4/16, there were approximately 33,000 customers without electric service in the service territory, with the amount of customers without electric service steadily decreasing.

CAUSE/ACTION: Major Distribution System Interruption, Weather or Natural Disaster, Repaired/Restored

THRESHOLD CRITERIA: DOE# 11. Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, April 16, 2007 **Time:** 14:00 EST

RegionID: MAAC **Ctrl Area:** PJM

AssociatedUtilities: BGE-Constellation Energy Group, Central Maryland, Baltimore City and surrounding counties **Type:** INT

Cause: Weather - Wind and Rain **Cause Category:** Weather

MW: **Customers:** 56000 **Customer Demand**

Restoration: Initial 4/16/2007 3:00:00 PM **Final -** 4/18/2007 5:00:00 PM

Event Description - Public

DESCRIPTION: Beginning on Sunday, April 15, 2007, and continuing through 4/17, an intense low pressure weather system moved through the utilities service area with heavy rain (over 2 inches) and high winds (gusts in excess of 50 MPH). Wide spread outages and distribution system damage included downed wires, trees and limbs on wires, and blown fuses. Additionally, several distribution substation outages and feeder lockouts were forced out of service. Outages are widespread, over 100 utility and contract constructions crews were needed and about 68 service operators were mobilized for the effort.

By 2:30 PM on 4/16, the storm was upgraded to a major storm as outages were created at the rate of over 100 per hour. The decision was made to mobilize external crew resources. However, due to similar outages up and down the eastern seaboard, utilities held their company and contractor crews making external resources difficult to obtain.

The storm center was closed at 5 PM on 4/18.

April 15-17 - at the peak hour of the storm, approx 56,000 customers were without service.

April 17-18 - at the peak hour of the storm, approx 138,000 customers were without service.

CAUSE/ACTION: Major Distribution System Interruption, Weather or Natural Disaster, Repaired/Restored

THRESHOLD CRITERIA: DOE# 11. Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, April 16, 2007 **Time:** 14:00 CST

RegionID: MAAC **Ctrl Area:** PJM

AssociatedUtilities: Baltimore Gas & Electric **Type:** INT

Cause: Weather - Wind and Rain **Cause Category:** Weather

MW: **Customers:** 56000 **Customer Demand**

Restoration: Initial **Final -** 4/16/2007 3:00:00 PM

Event Description - Public

DESCRIPTION: On April 16, 2007 a spring storm with gusty high winds and rain entered the utilities service territory. The storm was the result of an intense low pressure in the Northeast United States.

CAUSE/ACTION: Major Distribution System Interruption, Weather or Natural Disaster, Repaired/Restored

THRESHOLD CRITERIA: DOE# 11. Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, April 16, 2007 **Time:** 14:04 EST

RegionID: SERC **Ctrl Area:** VAP

AssociatedUtilities: Dominion, North, East, & central Va. / **Type:** DR
parts of N.E–N.C.

Cause: Weather - Wind and Rain **Cause Category:** Weather

MW: 90 **Customers:** 242000 **Customer Demand**

Restoration: Initial 4/18/2007 10:00:00 PM **Final -** 4/16/2007 7:03:00 PM

Event Description - Public

DESCRIPTION: Scattered distribution outages due to winds and rains from storm covering the east coast.
CAUSE/ACTION: Major Distribution System Interruption, Weather or Natural Disaster, Repaired/Restored
THRESHOLD CRITERIA: DOE# 11. Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Saturday, May 05, 2007

Time: 10:56

PDT

RegionID: WECC-NWPP **Ctrl Area:** IPCO

AssociatedUtilities: Idaho Area

Type: UO

Cause: Human Error

Cause Category: Human Error

MW:

Customers:

Customer Demand 240

Restoration: Initial

Final - 5/5/2007 7:12:00 AM

Event Description - Public

DESCRIPTION: On May 5, 2007 at 10:56 am, a utility was conducting an Energy Emergency Alert training class when an operator undergoing training actually shed load.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: Shed Firm Load

REPORT CRITERIA: OE-417 DOE #6 – Load shedding of 100 Megawatts or more implemented under emergency operational policy

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, May 10, 2007 **Time:** 09:57 PDT

RegionID: WECC-NWPP **Ctrl Area:** PGE

AssociatedUtilities: Crockett CoGeneration **Type:** INT

Cause: Equipment Failure **Cause Category:** Equipment Failure

MW: **Customers:** 1 **Customer Demand** 150

Restoration: Initial **Final -** 5/10/2007 1:47:00 PM

Event Description - Public

DESCRIPTION: On May 10, 2007 at 9:57 am, the utilities combined cycle was operating normally at 150 MW's, the gas turbine inlet bleed heat valve stopped tracking and combustion temperature alarms were reached.. The CT unloaded, the steam turbine tripped, and the main generator breaker was opened by operator. Plant personnel reset and recalibrated the faulty valve.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Other

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 NO Criteria Provided

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, May 14, 2007 **Time:** 11:15 CDT

RegionID: WECC-NWPP **Ctrl Area:** PGE

AssociatedUtilities: Crockett Cogeneration **Type:** INT

Cause: Equipment Failure **Cause Category:** Equipment Failure

MW: **Customers:** 1 **Customer Demand** 150

Restoration: Initial **Final -** 5/14/2007 1:50:00 PM

Event Description - Public

DESCRIPTION: On May 14, 2007 at 11:15 am the utilities combined cycle unit was operating normally at 120 MW's, the unit's steam turbine manual emergency stop button initiated a turbine trip. The button was caused by a loose wire in the mounting box. The trip cleared before anyone could examine the switch. The switch was tightened and functionally checked before the unit was restarted.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Other

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 NO Criteria Provided

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, May 15, 2007 **Time:** 15:00 CDT

RegionID: ECAR **Ctrl Area:** MECS

AssociatedUtilities: DTE Service Area **Type:** INT

Cause: Weather - High Wind Gusts and Rain **Cause Category:** Weather

MW: **Customers:** 66000 **Customer Demand** 500

Restoration: Initial **Final -** 5/17/2007 7:00:00 AM

Event Description - Public

DESCRIPTION: On May 15, 2007 at 9:39 PM, a severe storm entered the utilities service area. At the storms peak, 59000 customers were interrupted by the high winds and rain. A total of 66000 customers were affected overall. The transmission system was not affected. The distribution system experienced storm damage including wires down, damaged and broken poles. All customers were restored by 7 am on May 17.

TYPE OF EMERGENCY: Major Distribution System Interruption

CAUSE OF INCIDENT: Weather or Natural Disaster

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, May 21, 2007 **Time:** 13:48 PDT

RegionID: WECC-NWPP **Ctrl Area:** PGE

AssociatedUtilities: Crockett Cogeneration **Type:** INT

Cause: Human Error **Cause Category:** Human Error

MW: **Customers:** 1 **Customer Demand** 140

Restoration: Initial **Final -** 5/21/2007 4:50:00 PM

Event Description - Public

DESCRIPTION: On May 21, 2007 at 11:48 PM while the utilities combined cycle unit was operating normally at 140 MW's, an operator lifted the cover on high pressure fitting on the gas turbine lubrication sump.. The gas turbine then tripped on low hydraulic lubricating pressure. The unit tripped due to high exhaust temperature spreads.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Other

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #5 – Uncontrolled loss of 300 Megawatts or more of firm system loads for more than 15 minutes from a single incident

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, May 23, 2007 **Time:** 18:08 PDT

RegionID: WECC-NWPP **Ctrl Area:** BPAT

AssociatedUtilities: Northwest USA **Type:** UO

Cause: Equipment Failure **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 5/23/2007 8:10:00 PM

Event Description - Public

DESCRIPTION: At 6:08 PM on May 23, 2007, the utilities 500/230 kV transformer faulted C-ph internally. The adjoining converter station carrying 2255 MW experienced momentary commutation failures of two converters resulting in proper SPS action. About 0.15 seconds after restoring the converter, one phase of 500 kV PCB closed onto the transformer and the subsequent fault forced off the 500 kV line and converter. This resulted in proper SPS dropping of 2321 MW. The 500/230-kV transformer (and corresponding tie line) remains out of service due to damage to the transformer. The 500 kV PCB has been isolated for correction and the utility is investigating the cause of one phase closing into the transformer.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: No Criteria Provided, Regional Summary Report

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, June 07, 2007 **Time:** 12:47 PDT

RegionID: WECC-NWPP **Ctrl Area:** BPAT

AssociatedUtilities: BPA Service Area **Type:** UO

Cause: Human Error **Cause Category:** Human Error

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 6/7/2007 1:18:00 PM

Event Description - Public

DESCRIPTION: On June 7, 2007 at 12:47 PM, a utilities operator caused, human error, the loss of a 230 kV line. Boundary area generation failed to automatically respond properly and system Operators took action and manually ran back Boundary generation within 7 minutes of line loss. No adverse power system conditions resulted. Scheme temporarily wired to immediately drop generation until Runback scheme is repaired.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: EOP-004, No Criteria Noted

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, June 12, 2007 **Time:** 12:42 EDT

RegionID: NPCC-Ontario **Ctrl Area:** IESO

AssociatedUtilities: Ontario CA Area **Type:** VR

Cause: Voltage Reduction - Weather - Hot **Cause Category:** Voltage Reduction

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 6/12/2007 1:22:00 PM

Event Description - Public

DESCRIPTION: On June 12, 2007 at 12:42 PM, the utility was experiencing unusually hot and humid weather with temperatures approximately 4 degrees higher than forecast, resulting in a primary demand approximately 1200 MW higher. An EEA 1 had been declared and 200 MW Emergency energy was being purchased to maintain reserve margins. A TLR 3A was in effect due to congestion.

At 12:42 PM a 500 KV circuit was automatically removed from service resulting in 744 MW of generation being rejected. Included in the 800 MW operating reserve activation was 5 % voltage reductions. Approximately 500 MW of load relief was realized from the voltage reduction. ACE was reduced to 0 MW by 12:51 am. Frequency prior to the event was on schedule at 60.00 Hz during the event frequency dropped to approximately 59.95 Hz and recovered to 60.00 Hz by 12:46 PM. The 500 kV circuit was returned to service at 1:11 PM and the 5% voltage reductions ended at 1:22 PM.

TYPE OF EMERGENCY: Major Transmission System Interruption

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: Reduced Voltage

REPORT CRITERIA: OE-417 DOE #7 – System-wide voltage reductions of 3 percent or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, June 26, 2007 **Time:** 15:42 EDT

RegionID: NPCC **Ctrl Area:** NYIS

AssociatedUtilities: NY State **Type:** UO

Cause: Weather – Lightning Strike **Cause Category:** Weather

MW: **Customers:** **Customer Demand** 460

Restoration: Initial **Final -** 6/26/2007 4:30:00 PM

Event Description - Public

DESCRIPTION: On June 27, 2007 at 3:42 PM, the RC confirmed that a lightning strike near the utilities 138 kV substation resulted in the uncontrolled loss of load which was restored by 4:30 PM the same day. The lightning strike momentarily affected communication equipment that prompted circuit breakers on multiple transmission feeders to open, causing the service interruption. All other electric system components operated properly to contain the event from spreading and protected equipment needed for service restoration. There were no reliability impacts outside the local area.

TYPE OF EMERGENCY: Major Transmission System Interruption; Major Distribution System Interruption

CAUSE OF INCIDENT: Weather or Natural Disaster – Lightning Strike

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #5 – Uncontrolled loss of 300 Megawatts or more of firm system loads for more than 15 minutes from a single incident

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, June 27, 2007 **Time:** 15:54 PDT

RegionID: WECC-NWPP **Ctrl Area:** BCTC

AssociatedUtilities: BC Province **Type:** UO

Cause: Weather - Lightening Suspected **Cause Category:** Weather

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 6/29/2007 5:09:00 PM

Event Description - Public

DESCRIPTION: On June 27, 2007 at 3:54 PM, the utilities 500 kV line faulted (lighting suspected) causing the tripping and re-close of this circuit. Two 500/230 kV transformers tripped coincident with the line fault. Tripping of the transformer zone also resulted in opening of another 500 kV line. The loss also resulted in the interruption of a 230 kV supply to two substations. At 3:56 PM, approximately 140 MW of load was interrupted at due to currently unknown cause that may be related to the initial loss of the substation outages.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: Regional Report Summary, NO Criteria Noted

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, June 28, 2007 **Time:** 17:18 PDT

RegionID: WECC-NWPP **Ctrl Area:** BPAT

AssociatedUtilities: Northwest USA **Type:** UO

Cause: Equipment Failure - NON-Transmission System **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand** 800

Restoration: Initial **Final -** 7/1/2007 6:00:00 PM

Event Description - Public

DESCRIPTION: On June 28, 2007, at 5:18 PM, the generation utility while shifting oil filters on a Condensate Booster Pump, a motor tripped due to low oil pressure followed by a trip of both Reactor Feed Turbines on low suction pressure. The reactor was manually scrammed, resulting in loss of 800 MWe of generation. No equipment damage occurred, No critical infrastructures were interrupted, and no other electrical systems were affected. Resolution: Changed operating procedures to remove Condensate Booster Pumps from service before shifting oil filters.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Other

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #5 – Uncontrolled loss of 300 Megawatts or more of firm system loads for more than 15 minutes from a single incident

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Friday, June 29, 2007

Time: 09:23

PDT

RegionID: WECC-AZNM **Ctrl Area:** SRP

AssociatedUtilities: Phoenix Area

Type: INT

Cause: Equipment Failure - EMS Load
Shedding Tool

Cause Category: Equipment Failure

MW: **Customers:** 98700

Customer Demand 399

Restoration: Initial

Final - 6/29/2007 10:09:00 AM

Event Description - Public

DESCRIPTION: On June 29, 2007 at 9:23:14 am, the utility experienced an uncontrolled loss of 399 MW of firm load due to a malfunction of the Energy Management System computer load shedding tool. At the beginning of the event the system frequency was 59.997 Hz and peaked at 60.031 Hz at 9:23:34 am. By 10:09 am all firm customer load lost was restored. The EMS load shed tool has been temporarily disabled pending investigation and testing. The backup load shedding process is still available. There was no impact to the transmission system due to this event. There was no loss of generation. There was no sabotage associated with this incident.

The event was triggered by the status change of several dynamic transfer signals to telemetry error which biased the calculated load higher than the target load set in the load shed application. The load shed application began opening distribution circuits. Since the event, the biasing of calculated load due to telemetry errors has been removed. The feature that causes the load shed application to operate in automatic mode will be disabled prior to making it available again to operation.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Other

ACTIONS TAKEN: Other

REPORT CRITERIA: OE-417 DOE #5 – Uncontrolled loss of 300 Megawatts or more of firm system loads for more than 15 minutes from a single incident

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, July 03, 2007 **Time:** 10:59 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: CAISO Controlled Grid **Type:** PA

Cause: Public Appeal - Weather **Cause Category:** Public Appeal

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 7/3/2007 6:00:00 PM

Event Description - Public

DESCRIPTION: On July 3, 2007 at 7:10 am, due to high temperatures and loss of transmission capacity and generation in the area, the RC has made a public appeal as of 11:00 am for increased conservation for the period between 2 and 6 PM, as well as through the week. On July 5, the RC continued conservation for the period between 2 and 6 PM due to continuing high temperatures and demand.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Weather or Natural Disaster

ACTIONS TAKEN: Made Public Appeals

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Friday, July 06, 2007 **Time:** 17:18 MD

RegionID: WECC-NWPP **Ctrl Area:** PACW

AssociatedUtilities: Southern Idaho, Easter Oregon **Type:** UO

Cause: Weather – Storm and Fires **Cause Category:** Weather

MW: **Customers:** **Customer Demand** 60

Restoration: Initial **Final -** 7/6/2007 6:20:00 PM

Event Description - Public

DESCRIPTION: On July 6, 2007 at 5:18 PM severe storm entered the utilities service area with lightning and winds of 40mph and gusts of over 50mph. Between 3:20 and 4:51 PM the utility had several transmission lines trip and close. During this time there were reports of fire in the area and high winds. At 4:58 PM, a substation plus two 230 kV, three 345 kV, and one 500 kV associated transmission lines failed. By 5:12 PM fire had taken one more 345 kV line out of service. By 6:20 PM, operators were able to restore our reserves to required levels and returned to an EEA-0 at 6:20 PM. The damaged substation structures were repaired and returned to service by midnight July 7t. As of July 8 at 8 am there are still two 345 kV lines out of service one with 14 transmission structures damaged. One line is expected to return to service July 9 and the other by the middle of the week.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: Transmission Equipment; Loss of Part or All of a High Voltage Substation or Switchyard; Weather or Natural Disaster

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Saturday, July 07, 2007 **Time:** 19:00 CDT

RegionID: ECAR **Ctrl Area:** MECS

AssociatedUtilities: Southeastern MI **Type:** INT

Cause: Weather – Storm **Cause Category:** Weather

MW: **Customers:** 69000 **Customer Demand**

Restoration: Initial **Final -** 7/8/2007 7:00:00 AM

Event Description - Public

DESCRIPTION: On July 5, 2007 at 7 PM a severe storm entered the utilities service area affecting the distribution system. The storm continued through 7 am on July 8.

TYPE OF EMERGENCY: Major Distribution System Interruption

CAUSE OF INCIDENT: Weather or Natural Disaster

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417

DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, July 10, 2007 **Time:** 11:00 EDT

RegionID: NPCC **Ctrl Area:** NYIS

AssociatedUtilities: Eastern NY **Type:** INT

Cause: Weather – Firm Load Shed **Cause Category:** Weather

MW: **Customers:** 300000 **Customer Demand**

Restoration: Initial 7/12/2007 6:00:00 AM **Final -** 7/12/2007 6:00:00 AM

Event Description - Public

DESCRIPTION: On July 10, 2007 at 11 am, a storm entered the utilities service area. The storm damaged the 34.5 kV distribution system causing the shedding of 75 MWs of load. Later in the evening another storm developed tripping two 115 kV lines at 7:09 PM. This resulted in the loss of approximately 250 MW of generation. At 7:21 PM six 115 kV lines tripped resulting in low voltages below load shed limits. Operators initiated manual load shedding. Approximately 650 MWs of load was lost due to storm damage and load shedding. Of that approximately 100 MW of load was shed. All lines, generation and customers have been restored. These events did not impact the Bulk Power System.

TYPE OF EMERGENCY: Major Transmission System Interruption; Major Distribution System

CAUSE OF INCIDENT: Inadequate Electric Resources to Serve Load; Weather or Natural Disaster

ACTIONS TAKEN: Shed Firm Load; Repaired/Restored

REPORT CRITERIA: OE-417 DOE #6 – Load shedding of 100 Megawatts or more implemented under emergency operational policy

DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Sunday, July 15, 2007

Time: 19:28

CDT

RegionID: SERC

Ctrl Area: TVA

AssociatedUtilities: Western portion of TVA service area

Type: UO

Cause: Equipment Failure

Cause Category: Equipment Failure

MW:

Customers:

Customer Demand 950

Restoration: Initial

Final - 7/15/2007 7:28:01 PM

Event Description - Public

DESCRIPTION: NOTE: This event did not meet the DOE OE-417 or NERC EOP-004 trigger criteria but was provided as a courtesy since it approaches the reporting limits.

On July 15, 2007 at 7:28 PM the utility experienced a voltage dip emanating from the western area of the system. The utilities loads dropped and frequency rose to 60.06 Hz. The utilities equipment responded appropriately and action were taken to reduce generation to balance the system and restore ACE in about 6 minutes of the initial system disturbance. It was determined that a 161 kV/ 23 kV transformer bank in western substation had failed due to a lightning arrestor failure and recording devices showed a 3 phase fault which cleared as designed.

TYPE OF EMERGENCY: Other – Disturbance of Distribution System

CAUSE OF INCIDENT: Transmission Equipment

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #5 – Uncontrolled loss of 300 Megawatts or more of firm system loads for more than 15 minutes from a single incident

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, July 16, 2007 **Time:** 16:17 MD

RegionID: WECC-NWPP **Ctrl Area:** PACW

AssociatedUtilities: Utah Area **Type:** UO

Cause: Natural Disaster – Fires **Cause Category:** Fires

MW: **Customers:** **Customer Demand** 306

Restoration: Initial **Final -** 7/16/2007 7:18:00 PM

Event Description - Public

DESCRIPTION: On July 16 at 4:17 PM, the utility reported that three 138 kV lines relayed to lock out. All three lines run in the same corridor and a fire was reported under the lines. At least one structure is down.. Fire crews would not allow line crews in the area to inspect during the event. Air patrol attempted to get a visual of the damage. At 7:18 PM two of the 138 kV lines were restored to service and customer load restoration commenced. Station Service problems hindered the restoration process. All customers were reported back in service at 8 PM, and the system is stable.

TYPE OF EMERGENCY: Major Distribution System Interruption

CAUSE OF INCIDENT: Natural Disaster – Fires

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #5 – Uncontrolled loss of 300 Megawatts or more of firm system loads for more than 15 minutes from a single incident

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, July 17, 2007 **Time:** 18:00 CDT

RegionID: MAIN **Ctrl Area:** CE

AssociatedUtilities: EXELON Corp West-ComEd **Type:** INT

Cause: Weather - Thunderstorms and High Wind **Cause Category:** Weather

MW: **Customers:** 90000 **Customer Demand**

Restoration: Initial **Final -** 7/17/2007 6:00:00 PM

Event Description - Public

DESCRIPTION: Severe storms moved through the service area.

CAUSE/ACTION: Major Distribution System Interruption, Weather or Natural Disaster.

THRESHOLD CRITERIA: DOE# 11.Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, July 19, 2007 **Time:** 15:00 CDT

RegionID: ECAR **Ctrl Area:** MECS

AssociatedUtilities: Southwestern Region of DTE Service **Type:** INT
Territory

Cause: Weather - Thunderstorms and High Wind **Cause Category:** Weather

MW: **Customers:** 60000 **Customer Demand**

Restoration: Initial **Final -** 7/22/2007 11:30:00 PM

Event Description - Public

DESCRIPTION: On 7/19/2007 at 3 PM, a storm entered the service area. About 60,000 distribution customers were out of service. By 11 PM that evening, less than 50,000 customers were without service and by 10am 7/20 it was approximately 24,000. customers still remained out of service. The service territory experienced heavy tree damage resulting in numerous broken poles and wire down mostly concentrated in our south west region. As of 11:30 PM on 7/22 all service has been restored to all the customers affected by this storm.

CAUSE/ACTION: Major Distribution System Interruption, Weather or Natural Disaster

THRESHOLD CRITERIA: DOE# 11.Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, July 19, 2007 **Time:** 15:50 CDT

RegionID: SERC **Ctrl Area:** VAP

AssociatedUtilities: Dominion–Virginia Power/North Carolina **Type:** INT
Power

Cause: Weather - Thunderstorms and High Wind **Cause Category:** Weather

MW: **Customers:** 107000 **Customer Demand** 72

Restoration: Initial 7/19/2007 10:15:00 PM **Final -** 7/19/2007 4:50:00 PM

Event Description - Public

DESCRIPTION: 7/19 Scattered distribution outages due to thunderstorms and high winds from storms covering the east coast from Norfolk through central and northern Virginia. The result was scattered distribution outages affecting 107,000 out at the peak. Service was substantially restored to the majority of customers by 10:00 PM. Normal storm restoration procedures were put into effect

CAUSE/ACTION: Major Distribution System Interruption, Weather or Natural Disaster

THRESHOLD CRITERIA: DOE# 11.Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, July 31, 2007 **Time:** 00:00 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: N/A **Type:** UO

Cause: Equipment Failure **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 7/31/2007 12:00:01 AM

Event Description - Public

DESCRIPTION: On July 31, 2007 the GO/GOP experienced an outage of one of two generating units (221.5 MW) generator. The Go/GOP is NOT an LSE and does not serve "end users."

NOTE – Report NOT Required

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: EOP-004, Attachment 1, Item 4.b.

...Equipment failures/system operational actions which result in the loss of firm system demands for more than 15 minutes, as described below:

...Entities with a previous year recorded peak demand of more than 3,000 MW are required to report all such losses of firm demands totaling more than 300 MW. DOE #1 – Actual physical attack that causes major interruptions or impacts to critical infrastructure facilities or to operations

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Saturday, August 04, 2007 **Time:** 05:43 EDT

RegionID: ECAR **Ctrl Area:** AEP

AssociatedUtilities: RFC West to MISO East **Type:** UO

Cause: Equipment Failure **Cause Category:** Equipment Failure

MW: 4262 **Customers:** **Customer Demand**

Restoration: Initial **Final -** 8/4/2007 5:44:00 PM

Event Description - Public

DESCRIPTION: On August 4, 2007 at 5:43 PM, a 765kv line tripped and locked out causing the loss of 4,262 MW of generation in the three utilities.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: EOP-004 No Criteria Provided

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, August 08, 2007 **Time:** 13:00 EDT

RegionID: SERC **Ctrl Area:** CPLE

AssociatedUtilities: Portions of NC and SC **Type:** PA

Cause: Public Appeal - Weather - Hot **Cause Category:** Public Appeal

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 8/8/2007 9:00:00 PM

Event Description - Public

DESCRIPTION: On August 8, 2007 at 1 PM EST, in coordination with the State Governor's Office's appeal to the public to reduce electricity demand, the utility issued a general customer appeal to reduce demand due to extreme heat. Temperatures across the service territory had reached 100 degrees or more by noon. The utility has also issued an order to company employees to curtail non-essential load at utility owned facilities.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: Made Public Appeals

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, August 08, 2007 **Time:** 15:56 EDT

RegionID: MAAC **Ctrl Area:** PJM

AssociatedUtilities: Mid-Atlantic Region of PJM **Type:** VR

Cause: Voltage Reduction **Cause Category:** Voltage Reduction

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 8/8/2007 8:00:00 PM

Event Description - Public

DESCRIPTION: On August 8, 2007 at 3:56 PM EST, the RC implemented a 5% voltage reduction in an area, due to inadequate resources to serve firm demand.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Inadequate Electric Resources to Serve Load

ACTIONS TAKEN: Reduced Voltage – 5%; Implemented a Warning, Alert, or Contingency Plan

REPORT CRITERIA: OE-417

DOE #7 – System-wide voltage reductions of 3 percent or more

DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, August 09, 2007 **Time:** 12:45 EDT

RegionID: SERC **Ctrl Area:** CPLE

AssociatedUtilities: Portions of NC and SC **Type:** PA

Cause: Public Appeal - Weather - Hot **Cause Category:** Public Appeal

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final - 8/9/2007 9:00:00 PM**

Event Description - Public

DESCRIPTION: On August 9, 2007 at 12:45 PM EST, the utility issued a general customer appeal to conserve energy to reduce demand due to extreme heat. Temperatures across the service territory had reached 100 degrees or more by noon. The utility also issued an order to company employees to curtail non-essential load at utility owned facilities. This appeal is for customers to reduce for conservation purposes only and is not linked to an emergency capacity deficiency. The customer appeal ended at 11 PM.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: Made Public Appeals

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

**Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available**

Date: Friday, August 10, 2007 **Time:** 12:20 EDT

RegionID: SERC **Ctrl Area:** CPLE

AssociatedUtilities: Portions of NC and SC **Type:** PA

Cause: Public Appeal - Weather - Hot **Cause Category:** Public Appeal

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 8/10/2007 9:00:00 PM

Event Description - Public

DESCRIPTION: On August 10, 2007 at 12:20 PM the utility issued a general customer appeal to conserve energy to reduce demand for Friday, August 10 due to extreme heat. Temperatures across the service territory had reached 100 degrees or more by noon. The utility also issued an order to company employees to curtail non-essential load at the utilities facilities. This appeal is for customers to reduce energy consumption for conservation purposes only and is not linked to an emergency capacity deficiency. The customer appeal ended at 9 PM.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: Made Public Appeals

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, August 13, 2007 **Time:** 01:30 CDT

RegionID: MAIN **Ctrl Area:** AMRN

AssociatedUtilities: State of MO **Type:** INT

Cause: Weather - Severe Storm - High Winds **Cause Category:** Weather

MW: **Customers:** 63000 **Customer Demand**

Restoration: Initial **Final -** 8/14/2007 12:00:00 PM

Event Description - Public

DESCRIPTION: On August 13, 2007 at 1:30 am, a severe thunderstorm entered the utilities service area. The incident impacted the distribution system but NOT the transmission system. The storms high winds and lightning resulted in outages to approx 63,000 customers. Utility crews and contractors responded to the damage to restore customers. More than 95% of the customers were restored within 24 hours.

TYPE OF EMERGENCY: Major Distribution System Interruption

CAUSE OF INCIDENT: Weather

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, August 13, 2007 **Time:** 18:11 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: Shasta, CA **Type:** UO

Cause: Human Error **Cause Category:** Human Error

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 8/13/2007 9:00:00 PM

Event Description - Public

DESCRIPTION: On August 13 at 6:11 PM, an operator erroneously closed a ground switch on a generating unit while it was on-line, causing it and three other units at the station to trip (408 MW) and bypass the 230 kV bus differential protections. This caused a fire and damaged the ground switch and possibly damaged one of the generating units. A project is underway to reconfigure the 230 kV bus to double bus and double breaker scheme in the coming year.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: NERC EOP-004 filed

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, August 14, 2007 **Time:** 14:00 CDT

RegionID: ERCOT **Ctrl Area:** ERCO

AssociatedUtilities: CSWS area of SPP **Type:** INT

Cause: Weather - Shed Interruptible Load **Cause Category:** Weather

MW: **Customers:** 5 **Customer Demand**

Restoration: Initial **Final -** 8/14/2007 6:00:00 PM

Event Description - Public

DESCRIPTION: On August 14, 2007 at 2 PM, the utility implemented Step 6 of its emergency operation plan due to high temperatures and generating unit unavailability. Non-firm sales have been recalled and interruptible customers will be curtailed from 2-6 PM. A NERC EEA2 was declared at 1 PM.

TYPE OF EMERGENCY: Major Generation Inadequacy

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: Shed Interruptible Load

REPORT CRITERIA: OE-417 DOE #6 – Load shedding of 100 Megawatts or more implemented under emergency operational policy

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Saturday, August 18, 2007 **Time:** 04:08 PDT

RegionID: WECC-AZNM **Ctrl Area:** AZPS

AssociatedUtilities: Arizona PS **Type:** UO

Cause: Equipment Failure - Relay Setting **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final - 8/18/2007 4:18:00 AM**

Event Description - Public

DESCRIPTION: On August 18, 2007 at 4:08 am, in the utilities transmission system several lines opened and a 500 kV line tripped causing N to S overloads. A city within the control area experienced a voltage deviation and recovered within several minutes. Series capacitor banks tripped, further curtailing E-W transfers. There was residual damage to capacitor banks at on a 500 kV line and another line. The 500 kV capacitor bank was returned to service that same day and the other scheduled for repairs the week of August 20. No generators were tripped because of this disturbance. The cause of the line trip is believed to be relay miss-coordination based on information obtained from downloading data from the relay. The utility has made relay setting changes as appropriate.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: WECC Region Summary Report, NO CAUSE STATED

**Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available**

Date: Sunday, August 19, 2007 **Time:** 23:34 EDT

RegionID: SERC **Ctrl Area:** VAP

AssociatedUtilities: Central and Eastern VA **Type:** INT

Cause: Weather - Storm - Rain - High Wind **Cause Category:** Weather
Gusts

MW: **Customers:** 58500 **Customer Demand** 100

Restoration: Initial **Final -** 8/20/2007 1:10:00 AM

Event Description - Public

DESCRIPTION: On August 19, 2007 at 11:34 PM, thunder storms entered the utilities central and eastern service territories affecting 50,000 – 58,500 customers. The storm impacted the distribution system.

TYPE OF EMERGENCY: Major Distribution System Interruption

CAUSE OF INCIDENT: Weather

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, August 23, 2007 **Time:** 16:00 CDT

RegionID: MAIN **Ctrl Area:** CE

AssociatedUtilities: Commonwealth Edison Area **Type:** INT

Cause: Weather - Storm - Rain - High Wind **Cause Category:** Weather
Gusts

MW: **Customers:** 300000 **Customer Demand**

Restoration: Initial **Final -** 8/24/2007 12:00:00 PM

Event Description - Public

DESCRIPTION: On August 23, 2007 at 4 PM, thunder storms entered the utilities central and eastern service territories affected approx 300000 customers. The storm impacted the distribution system.

TYPE OF EMERGENCY: Major Distribution System Interruption

CAUSE OF INCIDENT: Weather

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Friday, August 24, 2007 **Time:** 20:27 PDT

RegionID: WECC-NWPP **Ctrl Area:** AESO

AssociatedUtilities: Alberta Province Area **Type:** UO

Cause: Animal Contact **Cause Category:** Animal Contact

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final - 8/24/2007 9:20:00 PM**

Event Description - Public

DESCRIPTION: On August 24, 2007 at 8:27 PM an AC/DC/AC converter tripped at 153 MW and overpower scheme operated as designed to trip a 138 kV lines islanding the utility from the Interconnection. At 9:20 PM the converter was back in service and the cause of trip was an animal intrusion at the facility. The frequency at the islanded utility deviated from 60.013 to a low value of 59.774 Hz and returned to 60 Hz at 8:31 PM.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: WECC Region Summary Report

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Saturday, August 25, 2007 **Time:** 18:00 CDT

RegionID: ECAR **Ctrl Area:** MECS

AssociatedUtilities: Southeastern MI **Type:** INT

Cause: Weather - Storm - Rain - High Wind **Cause Category:** Weather
Gusts

MW: **Customers:** 75000 **Customer Demand**

Restoration: Initial **Final -** 8/28/2007 6:30:00 AM

Event Description - Public

DESCRIPTION: On August 25, 2007 at 6 PM, a severe rain storm entered the utilities service area impacting the distribution system. Approx 75000 customers were affected. At 6:30 am on August 28 service had been restored to all of the customers.

TYPE OF EMERGENCY: Major Distribution System Interruption

CAUSE OF INCIDENT: Weather or Natural Disaster

ACTIONS TAKEN: Repaired/Restored

Report Criteria: OE-417 DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, August 29, 2007 **Time:** 13:53 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: City of Modesto **Type:** INT

Cause: Animal Contact - VEGETATION **Cause Category:** Animal Contact

MW: **Customers:** 26000 **Customer Demand** 180

Restoration: Initial **Final -** 8/29/2007 2:57:00 PM

Event Description - Public

DESCRIPTION: On August 29, 2007 at 1:53 PM, the utility reported that a 230 kV transmission line locked out as a result of vegetation contact. This was followed by a 230 kV line breakers opening. This N-2 condition activated a scheme to protect the 115 kV transformers from overloading and shed 84 MWs. Due to high temperatures the load continued to grow and the dispatchers had to load shed an additional 96 MWs between 2:18 and 2:39 PM. The affected circuit was trimmed on August 30.

CAUSE OF INCIDENT: Other

ACTIONS TAKEN: Shed Firm Load; Repaired/Restored

REPORT CRITERIA: OE-417 DOE #6 – Load shedding of 100 Megawatts or more implemented under emergency operational policy

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, August 29, 2007 **Time:** 16:00 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: Southern California **Type:** PA

Cause: Public Appeal - Weather- Hot **Cause Category:** Public Appeal

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final - 8/30/2007 6:00:00 PM**

Event Description - Public

DESCRIPTION: On August 28, 2007 a late-summer heat wave is bearing down on CA and the western region this week and the CAISO expects to see the highest electricity demands of the summer. The CAISO declared Wednesday and Thursday "Flex Alert Days" and urged CA California consumers to conserve energy and reduce demand on the system during the peak hours of 4 to 6 PM

On August 29, 2007 at 3 PM, CAISO declared a Warning effective 3-8 PM due to high temperatures causing high loads and lack of import capability. At 1:20 PM a CAISO Stage 1 Electrical Emergency was declared, effective 3:20-8 PM.

On August 30, 2007 the CAISO declared a Warning effective 2-8 PM due to high loads with limited resources. CAISO declared a "Flex Alert" for August 31 and asked electric customers to continued conservation efforts.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Weather

ACTIONS TAKEN: Made Public Appeals

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Friday, August 31, 2007 **Time:** 12:45 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: CAISO Area **Type:** PA

Cause: Public Appeal - Weather- Hot **Cause Category:** Public Appeal

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 8/31/2007 8:00:00 PM

Event Description - Public

DESCRIPTION: On August 31, 2007 at 12:45 PM, the utility declared a Warning, effective through 8 PM, due to high loads. The RC also requested available assistance from neighboring BA's. The Warning was cancelled at 5 PM.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Weather

ACTIONS TAKEN: Made Public Appeals

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, September 03, 2007 **Time:** 12:30 PDT

RegionID: WECC-CAMX **Ctrl Area:** SDGE

AssociatedUtilities: San Diego Area **Type:** PA

Cause: Weather – High Temperatures & Humidity **Cause Category:** Public Appeal

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final - 9/3/2007 5:30:00 PM**

Event Description - Public

DESCRIPTION: On Sept 3, 2007 at 12:30 PM, the utility experienced extreme weather conditions of high temperature and humidity resulting in extremely high system loads. Given the load ramp rate, earlier in the day utility made a public appeal. Since that appeal, the load ramp rate lessened due to public response and somewhat cooler temperatures. As a result, the issue that prompted the utilities concerns has been resolved.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Weather or Natural Disaster – High Temperatures & Humidity

ACTIONS TAKEN: Made Public Appeals

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, September 04, 2007 **Time:** 08:30 PDT

RegionID: WECC-CAMX **Ctrl Area:** SDGE

AssociatedUtilities: San Diego Area **Type:** PA

Cause: Weather – High Temperatures & Humidity **Cause Category:** Public Appeal

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 9/4/2007 3:30:00 PM

Event Description - Public

DESCRIPTION: On Sept 4, 2007 at 8:30 am, the utility experienced a continuation of the extreme weather conditions, high temperature and humidity, resulting in extremely high system loads, 500 MW over the previous day. Given the load ramp rate, the utility made a public appeal. Since that appeal, the load ramp rate lessened due to public response.

This was a distribution event. There was no involvement from RC or Region. The transmission system worked well this weekend and there were ample generation assets.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Weather or Natural Disaster – High Temperatures & Humidity

ACTIONS TAKEN: Made Public Appeals

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, September 05, 20 **Time:** 07:53 CDT

RegionID: ERCOT **Ctrl Area:** ERCO

AssociatedUtilities: Central Texas **Type:** UO

Cause: Equipment Failure-Relay **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand** 1084

Restoration: Initial **Final -** 9/5/2007 1:11:00 PM

Event Description - Public

DESCRIPTION: On Sept 5, 2007 at 7:52 am, two generating unit station was on line and running at 1,084 MW net with no abnormal conditions or indications present. At 7:53 am, in response to a close in fault on the dual circuit 345 KV transmission lines, both units tripped. The lines were faulted and forced out due to severe weather (tornado) conditions. The system frequency was 60.01 Hz prior to the disturbance and dropped to 59.74 Hz. At 8:00 am, system frequency had risen to 60.14 Hz.

The first fault was an A phase to ground fault on Line A. The second A-phase to ground fault occurred 0.57 seconds later on Line B. The third fault occurred 0.20 seconds later 3-phase fault to ground on Line A. Line A protective relaying correctly operated, locked out, and isolated the 3-phase permanent fault in approximately 3 cycles. The fourth fault occurred 0.5 seconds later was a 3-phase fault to ground on Line B. Line B protective relaying operated correctly, locked out, and isolated the 3-phase permanent fault in approximately 3 cycles.

The control system functioned as designed, and as intended. The control system tripped the units before damage could occur, and the units were restarted and returned to service the same day.

TYPE OF EMERGENCY: Other, generation lost due to severe weather

CAUSE OF INCIDENT: Weather or Natural Disaster

ACTIONS TAKEN: Other

REPORT CRITERIA: EOP-004 and OE-417, NO criteria listed

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, September 13, 2007 **Time:** 04:00 CDT

RegionID: SERC **Ctrl Area:** EES

AssociatedUtilities: State of LA Area **Type:** INT

Cause: Weather – Hurricane Humberto **Cause Category:** Weather

MW: **Customers:** 118000 **Customer Demand**

Restoration: Initial **Final -** 9/14/2007 7:00:00 AM

Event Description - Public

DESCRIPTION: On Sep. 13, 2007 at 1:45 am, the utility reported that hurricane Humberto made landfall as a strong Category 1 hurricane with max winds of 85 mph. By 4 am electric service to more than 50,000 customers for 1 hour or more was exceeded. At peak, 118,000 customers were affected. As of 4 PM on Sep. 14, restoration continues for 59,000 customers, with restoration for some customers expected to be as long as 5 days.

As of Sep. 14, noon, 37 of 55 affected transmission lines have been restored and 53 of 66 affected substations have been restored. Tropical depression Humberto system exited the utilities service territory around 7 am Sep. 14.

TYPE OF EMERGENCY: Major Transmission System Interruption; Major Distribution System

CAUSE OF INCIDENT: Weather or Natural Disaster – Hurricane Humberto

ACTIONS TAKEN: Implemented a Warning, Alert, or Contingency Plan; Repaired/Restored

REPORT CRITERIA: OE-417 DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Saturday, September 15, 2007 **Time:** 18:17 EDT

RegionID: NPCC-HQ **Ctrl Area:** HQT

AssociatedUtilities: Hydro-Quebec Transenergie **Type:** UO

Cause: Equipment Failure - Fire **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 9/15/2007 6:37:00 PM

Event Description - Public

DESCRIPTION: On Sept 15, 2007 at 6:17 PM the utility reported that a potential transformer fire on a substation bus resulted in the tripping of several lines. The utility lost 1371 MW of incoming energy, 120 MW of generation from Station A, plus 750 MW of industrial load due to frequency deviation. All generation service was restored by Sept 16.

TYPE OF EMERGENCY:

Major Transmission System Interruption

CAUSE OF INCIDENT: Transmission Equipment

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: Modified OE-417, NO Criteria Identified

**Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available**

Date: Tuesday, September 18, 2007 **Time:** 05:14 CDT

RegionID: MAIN **Ctrl Area:** MISO

AssociatedUtilities: MN, ND, MB - NSP **Type:** INT

Cause: Electrical System Separation – **Cause Category:** Weather
Islanding

MW: **Customers:** 6000 **Customer Demand** 4700

Restoration: Initial **Final -** 9/18/2007 6:10:00 AM

Event Description - Public

DESCRIPTION: SEE NERC PRESS RELEASE - Violent wind storms moving through the Dakotas and Minnesota forced 20 transmission lines (mainly 345 kV) out of service. At about 6:20 am EDT, a large portion of the western Midwest Independent System Operator (MISO) lost power. MISO was able to restore the U.S. section of the grid within 10 minutes, and will remain in conservative operation until 6:20 pm EDT. Saskatchewan Power also separated from the Eastern Interconnection when it lost its 230 kV tie lines into Manitoba and North Dakota. Generation outages totaling 896 MW occurred as well, resulting in customer outages. Saskatchewan Power reconnected to grid within an hour. Almost all customer load was restored within 2 hours.

TYPE OF EMERGENCY: Major Transmission System Interruption

CAUSE OF INCIDENT: Electrical System Separation – Islanding; Weather or Natural Disaster

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #4 – Electrical System Separation (Islanding) where part or parts of a power grid remain(s) operational in an otherwise blacked out area or within the partial failure of an integrated electrical system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, September 18, 2007 **Time:** 05:15 CDT

RegionID: MAIN **Ctrl Area:** MISO

AssociatedUtilities: MN, ND, MB - MISO **Type:** INT

Cause: Electrical System Separation –
Islanding **Cause Category:** Weather

MW: **Customers:** n/a **Customer Demand**

Restoration: Initial **Final -** 9/18/2007 6:10:00 AM

Event Description - Public

DESCRIPTION: SEE NERC PRESS RELEASE - Violent wind storms moving through the Dakotas and Minnesota forced 20 transmission lines (mainly 345 kV) out of service. At about 6:20 am EDT, a large portion of the western Midwest Independent System Operator (MISO) lost power. MISO was able to restore the U.S. section of the grid within 10 minutes, and will remain in conservative operation until 6:20 pm EDT. Saskatchewan Power also separated from the Eastern Interconnection when it lost its 230 kV tie lines into Manitoba and North Dakota. Generation outages totaling 896 MW occurred as well, resulting in customer outages. Saskatchewan Power reconnected to grid within an hour. Almost all customer load was restored within 2 hours.

TYPE OF EMERGENCY: Major Transmission System Interruption

CAUSE OF INCIDENT: Electrical System Separation – Islanding; Weather or Natural Disaster

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #4 – Electrical System Separation (Islanding) where part or parts of a power grid remain(s) operational in an otherwise blacked out area or within the partial failure of an integrated electrical system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, September 18, 2007 **Time:** 05:15 CDT

RegionID: MAIN **Ctrl Area:** MISO

AssociatedUtilities: MN, ND, MA - Great Rivers **Type:** INT

Cause: Electrical System Separation – **Cause Category:** Weather
Islanding

MW: **Customers:** n/a **Customer Demand**

Restoration: Initial **Final -** 9/18/2007 6:30:00 AM

Event Description - Public

DESCRIPTION: SEE NERC PRESS RELEASE - Violent wind storms moving through the Dakotas and Minnesota forced 20 transmission lines (mainly 345 kV) out of service. At about 6:20 am EDT, a large portion of the western Midwest Independent System Operator (MISO) lost power. MISO was able to restore the U.S. section of the grid within 10 minutes, and will remain in conservative operation until 6:20 pm EDT. Saskatchewan Power also separated from the Eastern Interconnection when it lost its 230 kV tie lines into Manitoba and North Dakota. Generation outages totaling 896 MW occurred as well, resulting in customer outages. Saskatchewan Power reconnected to grid within an hour. Almost all customer load was restored within 2 hours.

TYPE OF EMERGENCY: Major Transmission System Interruption

CAUSE OF INCIDENT: Electrical System Separation – Islanding; Weather or Natural Disaster

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #4 – Electrical System Separation (Islanding) where part or parts of a power grid remain(s) operational in an otherwise blacked out area or within the partial failure of an integrated electrical system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, September 18, 2007 **Time:** 05:21 CDT

RegionID: MAIN **Ctrl Area:** MISO

AssociatedUtilities: MN, ND, MB - SASK Power **Type:** INT

Cause: Electrical System Separation – **Cause Category:** Weather
Islanding

MW: **Customers:** n/a **Customer Demand** 896

Restoration: Initial **Final -** 9/18/2007 6:10:00 AM

Event Description - Public

DESCRIPTION: SEE NERC PRESS RELEASE - Violent wind storms moving through the Dakotas and Minnesota forced 20 transmission lines (mainly 345 kV) out of service. At about 6:20 am EDT, a large portion of the western Midwest Independent System Operator (MISO) lost power. MISO was able to restore the U.S. section of the grid within 10 minutes, and will remain in conservative operation until 6:20 pm EDT. Saskatchewan Power also separated from the Eastern Interconnection when it lost its 230 kV tie lines into Manitoba and North Dakota. Generation outages totaling 896 MW occurred as well, resulting in customer outages. Saskatchewan Power reconnected to grid within an hour. Almost all customer load was restored within 2 hours.

TYPE OF EMERGENCY: Major Transmission System Interruption

CAUSE OF INCIDENT: Electrical System Separation – Islanding; Weather or Natural Disaster

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #4 – Electrical System Separation (Islanding) where part or parts of a power grid remain(s) operational in an otherwise blacked out area or within the partial failure of an integrated electrical system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, September 24, 2007 **Time:** 13:38 CDT

RegionID: ECAR **Ctrl Area:** MECS

AssociatedUtilities: Southwest Michigan **Type:** UO

Cause: Equipment Failure – Condensate Vacuum **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand** 320

Restoration: Initial **Final -** 9/24/2007 5:00:00 PM

Event Description - Public

DESCRIPTION: On Sept 24, 2007 at 1:38 PM, Generation Operator generating unit #3 tripped due to the loss of condenser vacuum resulting in the loss of 320 MW.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Other

ACTIONS TAKEN: Other

REPORT CRITERIA: OE-417 DOE #5 – Uncontrolled loss of 300 Megawatts or more of firm system loads for more than 15 minutes from a single incident

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, October 03, 2007 **Time:** 16:35 EDT

RegionID: NPCC-HQ **Ctrl Area:** HQT

AssociatedUtilities: Quebec Area **Type:** UO

Cause: Human Error - Line Load Limit Exceeded **Cause Category:** Human Error

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 10/3/2007 5:14:00 PM

Event Description - Public

DESCRIPTION: The utility reported a violation of a transmission limit for more than thirty minutes. On Oct 3, 2007 at 4:35 PM, a 735 kV line on a radial transmission corridor tripped while another line in same corridor was out of service for maintenance. A human error caused the initial line trip. It is still under investigation. The transmission capacity dropped and the dispatchers rapidly began to re-dispatch the generation in the corridor. Some deliveries were cut.

On the corridor, the flow decreased below the post-contingency normal limit for 31 min. 55 sec. after the tripping of the line. The emergency limit was not available at that time for that unusual configuration.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: DOE OE-20 Emergency Report

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Sunday, October 07, 2007 **Time:** 12:35 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: Portola, CA **Type:** INT

Cause: Distribution Transformer Failure - **Cause Category:** Animal Contact
Squirrel

MW: **Customers:** 2500 **Customer Demand** 10

Restoration: Initial **Final -** 10/7/2007 5:00:00 PM

Event Description - Public

DESCRIPTION: On Oct 7, 2007 at 12:35 PM, a squirrel caused a fault on the 12 kV distribution side of a substation transformer operated by the utility. A 60 kV breaker opened to clear the fault. The outage was contained within the utilities system. The utility was operating at 17 MW, from a peak of 27 MW, the system dropped to 6 MW. The utility is investigating equipment operation and configuration to determine appropriate follow-up actions.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: EOP-004

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, October 10, 2007 **Time:** 14:28 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: Portola, CA **Type:** INT

Cause: Weather - High Wind Gusts **Cause Category:** Weather

MW: **Customers:** 7500 **Customer Demand** 15

Restoration: Initial **Final -** 10/10/2007 5:00:00 PM

Event Description - Public

DESCRIPTION: On Oct 10, 2007 at 2:28 am, high wind gusts caused transmission lines to come together causing the utilities substation to open, separating the utility from the neighboring utility. Approx 7500 customers were affected and 15 MW of firm energy lost.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: NERC EOP-004

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, October 15, 2007 **Time:** 03:14 PDT

RegionID: WECC-NWPP **Ctrl Area:** PACE

AssociatedUtilities: PACE Area **Type:** UO

Cause: Off-Normal Operation – Specific **Cause Category:** Off-Normal Operation
Cause Being Investigated

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 10/15/2007 4:52:00 AM

Event Description - Public

DESCRIPTION: On Oct 15, 2007 at 3:14 am, the utilities X-Y 345 kV line tripped. Relaying responded correctly opening the line due to a single-line-ground fault caused by an A-phase conductor being down. The X-W1 138-kV line tripped at approx the same time. At 3:20 am the Reliability Coordinator curtailed interruptible loads to reduce loading on remaining 138 kV lines. At 3:21 am the RC requested immediate reduction of generation. At 3:27 am the X-W2 138kV line tripped. Approx 1 minute later, the remaining X-W3 138 kV line tripped. Additional generation was curtailed to reduce loading within limits. All 138 kV lines were restored by 4:52 am and interruptible loads were restored by 5:19 am. The X-Y 345 kV line remains out-of-service to repair the conductor. Cause of the 138 kV line trips are under investigation.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: WECC Summary Report

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, October 18, 2007 **Time:** 15:00 PDT

RegionID: WECC-NWPP **Ctrl Area:** PSEI

AssociatedUtilities: Western WA Area **Type:** INT

Cause: Weather - High Wind Gusts **Cause Category:** Weather

MW: **Customers:** 160000 **Customer Demand**

Restoration: Initial **Final -** 10/19/2007 12:00:00 PM

Event Description - Public

DESCRIPTION: On Oct 18, 2007 at 3 PM, a significant weather event occurred in the utilities service area affecting over 165000 distribution customers. High winds, up to 50+ mph, resulted in damage to Transmission and Distribution infrastructure. The utilities Emergency Operations Center and all outlying areas Operating Bases were opened. Crews are working around the clock to restore system to normal. Current estimate is two to three days for complete restoration.

On Oct 19, seven transmission lines were off but the utility restored supplies to all substations due to multiply supplies into the substations. No customers were without service due to the transmission outages. They have restored service to 152,000 customers and have 14,000 remaining to restore. Utility crews have encountered an extensive amount of damage to the utility's power system from wind-blown trees and limbs.

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: Weather or Natural Disaster

ACTIONS TAKEN: N/A

REPORT CRITERIA: OE-417 DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, October 22, 2007 **Time:** 14:01 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: SCE -- LA Area of CA **Type:** INT

Cause: Fires - Brush Fires **Cause Category:** Fires

MW: **Customers:** 90323 **Customer Demand** 451

Restoration: Initial **Final -** 10/22/2007 2:22:00 PM

Event Description - Public

DESCRIPTION: On Oct 22, 2007 at 2:01 PM, the utility reported a 220 kV lines relayed when brush fire burned under both lines. At 2:05 PM manual load shedding was initiated (551 MW) and a 220 kV line exceeding its 15 minute emergency loading limit as result of the relay operations. Approximately 90,323 customers were affected.

At approx 2:06 PM 200 MW of firm load was requested. At 2:08 PM the Reliability Coordinator declared a regional transmission emergency. By 2:20 PM both 220 kV line were returned to service and by 2:43 all customers were restored.

The fires continue to burn in through Oct 23. A substation was taken off line and numerous distribution lines were de-energized. The RC declared a transmission emergency for Oct 23. The fires continue to burn with high winds expected till midday on Oct 24 and the fires are still threatening several transmission lines.

TYPE OF EMERGENCY: Major Transmission System Interruption

CAUSE OF INCIDENT: Weather or Natural Disaster – Brush Fire

ACTIONS TAKEN: Shed Firm Load; Implemented a Warning, Alert, or Contingency Plan

REPORT CRITERIA: OE-417 and EOP-004 DOE #6 – Load shedding of 100 Megawatts or more implemented under emergency operational policy

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, October 24, 2007 **Time:** 09:45 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: Southern CA **Type:** PA

Cause: Public Appeal - Conservation **Cause Category:** Public Appeal

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 10/24/2007 8:00:00 AM

Event Description - Public

DESCRIPTION: On Oct 24, 2007 at 9:45 am, the Reliability Coordinator issued a public alert to conserve electricity if possible.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Other

ACTIONS TAKEN: Made Public Appeals

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, October 24, 2007 **Time:** 12:45 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: Southern CA **Type:** PA

Cause: Public Appeal - Conservation **Cause Category:** Public Appeal

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 10/24/2007 1:00:00 PM

Event Description - Public

DESCRIPTION: On Oct 26, 2007 at 12:45 PM, the Reliability Coordinator issued a public alert to conserve electricity if possible.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Other

ACTIONS TAKEN: Made Public Appeals

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Friday, October 26, 2007 **Time:** 02:06 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: San Diego G&E **Type:** UO

Cause: Fires - Brush Fires - Firm Load Shed **Cause Category:** Fires

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 10/22/2007 2:43:00 PM

Event Description - Public

DESCRIPTION: On Oct 22 at 2:06 PM, the continuing brush fires in the region caused the tripping of two transmission lines in a neighboring utility resulting in the overload of another line. The Reliability Coordinator ordered the utility to shed 200 MW of firm load immediately to alleviate the overload. Service was restored to the 68,780 shed customers 37 minutes later.

TYPE OF EMERGENCY: Other – Transmission system overload

CAUSE OF INCIDENT: Weather or Natural Disaster

ACTIONS TAKEN: Shed Firm Load; Repaired/Restored

REPORT CRITERIA: OE-417 DOE #6 – Load shedding of 100 Megawatts or more implemented under emergency operational policy

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Friday, October 26, 2007 **Time:** 06:45 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: Southern CA Breaker **Type:** UO

Cause: Equipment Failure – Breaker **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand** 280

Restoration: Initial **Final -** 10/26/2007 10:30:00 AM

Event Description - Public

DESCRIPTION: On Oct 24, 2007 at 6:45 am, the utilities substation had a malfunction of a breaker or line and 280 MW was lost. All loads were restored at 10:30 am on Oct 26.

TYPE OF EMERGENCY: Loss of 115/66 kV feeder

CAUSE OF INCIDENT: Transmission Equipment

ACTIONS TAKEN: Repair/Replace

REPORT CRITERIA: OE-417 DOE #8 – Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system

**Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available**

Date: Friday, October 26, 2007 **Time:** 14:01 PDT

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: City of Riverside **Type:** INT

Cause: Fires - Line Load Limits Exceeded **Cause Category:** OSL Violation

MW: **Customers:** 90323 **Customer Demand** 240

Restoration: Initial **Final -** 10/26/2007 10:46:00 AM

Event Description - Public

DESCRIPTION: On Oct 26, 2007 at 2:01 PM two 230 kV lines relayed when brush fire burned under both lines. At 2:05 PM manual load shedding was initiated at two substations, due to a 230 kV line exceeding the 15 min emergency loading limit. Approx 90323 customers were affected. At 2:22, all substations were returned to normal service.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Unknown Cause

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Saturday, November 03, 2007 **Time:** 18:00 EDT

RegionID: NPCC **Ctrl Area:** ISNE

AssociatedUtilities: Eastern MA, RI, Cape Cod **Type:** INT

Cause: Weather - Tropical Storm Noel **Cause Category:** Weather

MW: **Customers:** 170000 **Customer Demand**

Restoration: Initial **Final -** 11/4/2007 6:00:00 PM

Event Description - Public

DESCRIPTION: On Nov 3, 2007, at 6 PM, tropical storm (Noel) with high winds arrived in the North East areas. Subsequent distribution customer outages were widespread throughout the area. As of 10 PM on Nov 3, the total number of customers OOS due to weather related outages were 62843.

The storm continued into Nov 4, electric service was interrupted and up to 170000 customers (500 MW) were affected. In addition to distribution outages, two bulk (230 kV) power system circuits were tripped and quickly restored.

By Nov 5 at 11 am, about 75% of the service had been restored.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Weather or Natural Disaster

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 and EOP-004-1 DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

DESCRIPTION: On Nov 3, 2007, at 6 PM, tropical storm (Noel) with high winds arrived in the North East areas. Subsequent distribution customer outages were widespread throughout the area. As of 10 PM on Nov 3, the total number of customers OOS due to weather related outages were 62843.

The storm continued into Nov 4, electric service was interrupted and up to 170000 customers (500 MW) were affected. In addition to distribution outages, two bulk (230 kV) power system circuits were tripped and quickly restored.

By Nov 5 at 11 am, about 75% of the service had been restored.

TYPE OF EMERGENCY: Other

CAUSE OF INCIDENT: Weather or Natural Disaster

ACTIONS TAKEN: Repaired/Restored

REPORT CRITERIA: OE-417 and EOP-004-1 DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Sunday, November 04, 2007 **Time:** 09:31 EDT

RegionID: NPCC-HQ **Ctrl Area:** HQT

AssociatedUtilities: Hydro-Quebec Transenergie Area **Type:** INT

Cause: Weather - Tropical Storm Noel **Cause Category:** Weather

MW: **Customers:** 20000 **Customer Demand**

Restoration: Initial **Final -** 11/4/2007 11:41:00 AM

Event Description - Public

DESCRIPTION: On Nov 4, 2007, at 9:31 am, tropical storm Noel hit the eastern service area with strong winds and snow near a substation to a radial transmission corridor. At 7:04 am, two 161 kV power lines tripped with a lost of 20 to 30 MW of load. At 8:24 am, a second line tripped and the corridor remained synchronized to the main grid by only one line (one of the three lines of the corridor was already out before that trip). The second power line was reenergized two minutes later but tripped again immediately. The dispatcher reduced the power flows to the new in around 10 minutes. At 8:38 am, a third line tripped causing the separation of the corridor. On the main grid the frequency dropped to a min of 59.05 Hz and on the affected subsystem the frequency raised to a maximum of 64.75 Hz. After that initial swing the island was stabilized for a while but with some difficulties to maintain the voltage profile. At 9:31 am following a voltage variation, a large-use customer tripped 400 MW of load and the subsystem collapsed. A total load of 1039 MW was lost.

The system restoration procedure was applied on the subsystem. The synchronization with the rest of the grid was completed at 11:41 am. The loads were mostly restored around noon. The rest of the load was restored later the same day by distribution crews.

TYPE OF EMERGENCY: Major Transmission System Interruption

CAUSE OF INCIDENT: Weather or Natural Disaster

ACTIONS TAKEN: Implemented a Warning, Alert, or Contingency Plan; Repaired/Restored

REPORT CRITERIA: OE-417 DOE #4 – Electrical System Separation (Islanding) where part or parts of a power grid remain(s) operational in an otherwise blacked out area or within the partial failure of an integrated electrical system

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Sunday, November 11, 2007 **Time:** 18:00 PST

RegionID: WECC-NWPP **Ctrl Area:** BCTC

AssociatedUtilities: BC Province Area **Type:** INT

Cause: SPS Failure - Update Error **Cause Category:** SPS Failure

MW: **Customers:** 244000 **Customer Demand**

Restoration: Initial **Final -** 11/12/2007 2:00:00 PM

Event Description - Public

DESCRIPTION: On Nov 11, 2007 at 8:59 am, Modesto Irrigation District was in the process of updating of the SPS software. The change-over initiated the shedding of 27 12 kV distribution breakers. A total of 88 MW of interruptible power was lost and approximately 30000 customers were affected for a period of 8 minutes. There was no final determination of action to be taken to prevent recurrence.

TYPE OF EMERGENCY: Major Distribution System Interruption

CAUSE OF INCIDENT: Unknown Cause

ACTIONS TAKEN: Shed Interruptible Load

REPORT CRITERIA: N/A – NERC EOP-004-1 Form, see OE-417 criteria DOE #6 – Load shedding of 100 Megawatts or more implemented under emergency operational policy

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, November 12, 2007 **Time:** 06:30 PST

RegionID: WECC-NWPP **Ctrl Area:** BPAT

AssociatedUtilities: Oregon, WA , BC-CA **Type:** INT

Cause: Weather - High Wind Gusts - Rain **Cause Category:** Weather

MW: **Customers:** 100000 **Customer Demand**

Restoration: Initial **Final -** 11/12/2007 7:00:00 PM

Event Description - Public

DESCRIPTION: On Nov 12, 2007 at 6:30 am, high winds ranging from 80 to 85 knots entered the area resulting in distribution damage and the loss of approx. 105 MW of load. The affected LSE's reported over 100000 customers being affected (OOS).

TYPE OF EMERGENCY: N/A

CAUSE OF INCIDENT: Weather or Natural Disaster

ACTIONS TAKEN: N/A

REPORT CRITERIA: OE-417 DOE #11 – Loss of electric service to more than 50,000 customers for 1 hour or more

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Friday, November 16, 2007 **Time:** 14:55 EST

RegionID: NPCC **Ctrl Area:** ISNE

AssociatedUtilities: MA Area **Type:** UO

Cause: Equipment Failure - Static Wire **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 11/16/2007 3:07:00 PM

Event Description - Public

DESCRIPTION: On Nov 16, 2007 at 2:55 PM, a static wire fell into the 345 kV switchyard and the 2X transformer and tripped the 1X and 2X transformers. Due to the trip of the transformers the DC switchyard loss power tripping phase 2, 1419 MW was OOS until 10:05 PM until crews had isolated the 1X and restored the 2X. The 1X transformer remains OOS and is not expected to return until the end of Dec at the earliest. No load was interrupted as a result of the event.

TYPE OF EMERGENCY: Major Transmission System Interruption

CAUSE OF INCIDENT: N/A

ACTIONS TAKEN: N/A

REPORT CRITERIA: OE-417 but No Criteria Noted

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, November 27, 2007 **Time:** 03:38 PST

RegionID: WECC-NWPP **Ctrl Area:** PACE

AssociatedUtilities: PacifiCorp Area **Type:** UO

Cause: Animal Contact - Bird Droppings **Cause Category:** Animal Contact

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 11/30/2007 5:00:00 PM

Event Description - Public

DESCRIPTION: On Nov 27, 2007 at 3:38 PM, the RC reported that a 345-kV line (A), carrying 394 MW, relayed open due to a phase-to-ground fault. The line was back in service at 4:05 PM. Four minutes later, the line relayed open again due to a phase-to-ground fault. Within a minute of this happening, another 345-kV line (B), carrying 724 MW, relayed open, also due to a phase-to-ground fault. As a result of loss of both 345-kV lines, the 230/138 kV transformer overloaded and relayed out of service, resulting in a separation between buses. The Operator responded by phase shifting, cutting schedules and curtailing generation.. No customers were affected by these outages.

Heavy flows were observed in the neighboring systems due to the separation. The Operator requested a 200 MW generation reduction because of high angles prior to closing the lines. Rainy/snowy weather was reported in the area. However, line patrols in the night failed to identify the locations of the faults. All 345 kV lines were restored back in service by 10:33 PM. On the following day, line patrols found heavily bird contaminated insulators.. The contaminated insulators were replaced on Nov 29 and 30.

TYPE OF EMERGENCY: Major Transmission System Interruption

CAUSE OF INCIDENT: Loss of Part or All of a High Voltage Substation or Switchyard

ACTIONS TAKEN: N/A

REPORT CRITERIA: Region Format

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Friday, November 30, 2007 **Time:** 23:49 PST

RegionID: WECC-NWPP **Ctrl Area:** PACE

AssociatedUtilities: PacifiCorp Area **Type:** UO

Cause: Animal Contact - Bird Droppings **Cause Category:** Animal Contact

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 12/4/2007 5:00:00 PM

Event Description - Public

DESCRIPTION: On Nov 30 at 11:49 PM, the 345 kV line (A), carrying 391 MW, relayed open due to a phase-to-ground fault caused by bird contamination. The Operator responded by phase shifting, cutting schedules and curtailing generation. The Operator requested a 200 MW generation reduction to lower flows on the transmission system. At 11:56 PM, the 345 kV line (B), carrying 765 MW, relayed open also due to phase-to-ground fault caused by bird contamination. As a result of the loss of both 345 kV lines, the 230/138 kV transformer overloaded and tripped. At 0:10 am, the RC reported high flows across and requested the neighboring utility to adjust the phase shifters. All the 345 kV lines were back in service by 3:56 am.

Subsequent line patrols found bird contaminated insulators. The contaminated insulators were replaced on Dec 3 and 4, 2007. No customers were affected by the Nov. 30th outages.

TYPE OF EMERGENCY: Major Transmission System Interruption

CAUSE OF INCIDENT: Loss of Part or All of a High Voltage Substation or Switchyard

ACTIONS TAKEN: N/A

REPORT CRITERIA: Region Format

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Saturday, December 01, 2007 **Time:** 00:30 PST

RegionID: WECC-CAMX **Ctrl Area:** CISO

AssociatedUtilities: western Oregon and southwest Washington **Type:** INT
coastal areas

Cause: Weather - Wind and Rain Storm **Cause Category:** Weather

MW: **Customers:** 40454 **Customer Demand**

Restoration: Initial **Final -** 12/1/2007 12:30:00 AM

Event Description - Public

DESCRIPTION: On 12/1/2007, utility crews worked all night to restore service to customers who were without power due to the severe wind and heavy rain brought on by the powerful storms that have hit and continue to hit the area. Winds have been recorded up to 129 miles per hour and 60 – 70 foot waves have been reported.

- Currently 40,454 customers are without power.
- High wind warnings remain in effect in the coastal areas.
- Crews from other areas are being brought to the coast to assist.
- We expect it may be 3-4 days before power is substantially restored to these areas.
- in the meantime, customers are being asked to remain indoors and avoid any downed lines.

CAUSE/ACTION: N/A

THRESHOLD CRITERIA: NONE, Letter Report

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Monday, December 03, 2007 **Time:** 07:22 EST

RegionID: SPP **Ctrl Area:** SPA

AssociatedUtilities: Mid Atlantic/ VA area **Type:** UO

Cause: Equipment Failure - Switch **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand**

Restoration: Initial 12/3/2007 7:51:00 AM **Final -** 12/3/2007 3:59:00 PM

Event Description - Public

DESCRIPTION: On 12/3/2007, the utility facility experienced an electrical disturbance that resulted in both units (115.5 MW total, 107 MW operating at time) to trip off-line. The local utility at the time was setting up to do switching in preparation for outage work of a transmission line. The switch failed; the breakers were closed and generation restored.

CAUSE/ACTION: N/A

THRESHOLD CRITERIA: NONE, EOP-004-1

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Tuesday, December 11, 2007 **Time:** 04:00 CST

RegionID: SPP **Ctrl Area:** OKGE

AssociatedUtilities: Eastern half of the state of Kansas **Type:** INT

Cause: Weather - Ice Storm **Cause Category:** Weather

MW: **Customers:** 95000 **Customer Demand** 500

Restoration: Initial **Final -** 12/20/2007 3:30:00 PM

Event Description - Public

DESCRIPTION: Severe wind and ice storms moved through the service area the evening of 12/10/ 2007. By approximately 4:30 am on 12/11 more than 50,000 customers were outaged. As of 12:30 on 12/11, approximately 87,000 customers were outaged. By 12/20 3:30 PM – the utility said it will have power restored by day’s end to all customers who are able to receive electrical service. The utility will continue to restore power to customers as they become ready and to fix streetlights and perform other clean-up work. More than 2,000 linemen from 21 states, and more than 1,200 tree trimmers, joined 1,200 utility employees who were dedicated to restoring power and support the work of the tree trimming and line crews. At the peak of the incident, more than 2000 MW of generation were out of service.

CAUSE/ACTION: Weather or Natural Disaster.

THRESHOLD CRITERIA: DOE# 11.Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, December 12, 20 **Time:** 01:49 CST

RegionID: ERCOT **Ctrl Area:** ERCO

AssociatedUtilities: ERCOT area **Type:** UO

Cause: System Protection **Cause Category:** Sys. Prot.

MW: 1022 **Customers:** **Customer Demand**

Restoration: Initial **Final -** 12/12/2007 1:59:00 AM

Event Description - Public

DESCRIPTION: .On 12/12/2007 at 1:49 am the utility simultaneous lost 846 MW of GT and a 176 MW generator. This was a potential NERC Disturbance Control Standard event. The reason for the trip is under investigation. The utility employed redistribution as responsive reserve service to recover frequency. Frequency recovered in 10 minutes.

CAUSE/ACTION: N/A

THRESHOLD CRITERIA: NONE, EOP-004-1 Reported

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Wednesday, December 12, 20 **Time:** 08:55 MST

RegionID: WECC-AZNM **Ctrl Area:** PNM

AssociatedUtilities: Arizona-New Mexico **Type:** UO

Cause: Equipment Failure - Breaker Fault **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 12/12/2007 11:00:00 AM

Event Description - Public

DESCRIPTION: On 12/12/2007 at 8:55 am, a 500-kV breaker 942 faulted internally in the A phase tank. The fault occurred during a routine open operation that was taking place for a scheduled outage. This fault cleared the 500-kV east bus with a bus differential relay operation. 500-kV line #3 was cleared due to the bus differential relaying tripping PL 982 and the resulting transfer tripping of the associated power breakers 912 & 915. There was no customer load loss associated with this event.

CAUSE/ACTION: N/A

THRESHOLD CRITERIA: NONE, WECC Report

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Thursday, December 13, 2007 **Time:** 11:23 EST

RegionID: MAAC **Ctrl Area:** PJM

AssociatedUtilities: ConEd and PSE&G **Type:** UO

Cause: Equipment Failure - Feeder Fault **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 12/13/2007 11:42:00 AM

Event Description - Public

DESCRIPTION: On 12/13/2007 at 11:23am a multiple transmission feeder trip out occurred resulting in the loss of 2 transmission feeders, 345KV feederY94 and 138KV feeder 95891. Additionally 345KV feeder 69 (an inter-utility tie) opened automatically at the Ramapo S/S only and remained energized from PSEG 's Waldwick S/S. In addition 345KV feeder W72 opened automatically at the Ladentown S/S terminal only and automatically re-closed. This trip out resulted in a LTE violation on feeder K3411 in the PSE&G service area. Corrective actions were implemented by the NYISO. Note: This trip out occurred during snow/sleet
CAUSE/ACTION: N/A

THRESHOLD CRITERIA: NONE, EOP-004-1 Reported

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Saturday, December 22, 2007 **Time:** 02:52 CST

RegionID: ERCOT **Ctrl Area:** ERCO

AssociatedUtilities: Eastern Region of ERCOT **Type:** UO

Cause: Equipment Failure **Cause Category:** Equipment Failure

MW: **Customers:** **Customer Demand**

Restoration: Initial **Final -** 12/22/2007 4:07:00 AM

Event Description - Public

DESCRIPTION: With frequency initially at 59.949 Hz at 02:52:46, the North DC Tie tripped due to reactive switching at the station. CAUSE/ACTION: Implemented a Warning, Alert, or Contingency

Plan; Shed Interruptible Load

THRESHOLD CRITERIA: DOE #6-Load shedding of 100 Megawatts or more implemented under emergency operational policy

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

Date: Sunday, December 23, 2007 **Time:** 01:00 CST

RegionID: MAIN **Ctrl Area:** CE

AssociatedUtilities: Entire ComEd service territory. **Type:** INT

Cause: Weather - Ice Storm **Cause Category:** Weather

MW: **Customers:** 69000 **Customer Demand**

Restoration: Initial **Final -** 12/23/2007 1:00:00 PM

Event Description - Public

DESCRIPTION: Severe wind storms moved through the service area.

CAUSE/ACTION: Weather or Natural Disaster.

THRESHOLD CRITERIA: DOE# 11.Loss of electric service to more than 50,000 customers for 1 hour or more.

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available

**Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
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