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### 2007 - Number of Disturbances by Region - Public

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**Total Number of Disturbances:** 103
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: Islanding  Cause Category: Human Error
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 (IMO)   Type: UO

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

MW: 54   Customers: 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


Misoperation

MW: 1743      Customers:      Customer Demand


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
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.
Weather - Ice Storm

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: Saturday, February 24, 2007  Time: 18:00  CST
RegionID: MAIN  Ctrl Area: MISO
Associated Utilities: Alliant Energy  Type: INT
Cause: Weather - Ice Storm  Cause Category: Weather
MW:  Customers: 140000  Customer Demand 400
Restoration: Initial  Final - 2/24/2007 11:47:00 PM

Event Description - Public
DESCRIPTION: On 2/24/2007 an ice event and blizzard conditions through the utilities service territory. Ice and galloping conductors caused a very large number of transmission line outages, many of these had extensive damage with conductors down and structure failures. Several 345 kV lines were damaged and over 10 miles of structures were downed. By 7 PM that same day, all transmission sources to a significant city were and under frequency load shedding saved local generation and created an island. Around the service territory several substations were out of service. REPORT CRITERIA OE-417 #4, #5, #6 and #11.

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

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.

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**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.
Event Description - Public
DESCRIPTION: On 3/1/2007 at 9:40 PM, 60,408 customers, 200 MW loss of demand, were interrupted due to major storm moving through Mississippi, Alabama, Florida and Georgia. By 3/2 at 11 PM the loss of demand was reduced to 65 MW and approximately 19,557 remained without service. Restoration is continuing with no problems anticipated.
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
DESCRIPTION: On 3/1/2007 a weather disturbance with tornadoes, rain and high wind moved through the southeast disrupting the distribution systems. Approximately 60,408 customers were interrupted. Restoration and repairs are underway with most customers restored by 11 PM on 3/2. DOE Schedule 1 Alert Notice: #11.
Thursday, April 05, 2007 09:20 EST

NPCC

INT

117142

4/6/2007 1:10:00 PM

Weather - Snow Storm

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.

Date: Thursday, April 05, 2007 Time: 09:20 EST
RegionID: NPCC Ctrl Area: ISNE
AssociatedUtilities: ISO-New England; Maine, Central Maine 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
Associated Utilities: ISO-New England; New Hampshire, PS of NH
Cause: Weather - Snow Storm     Cause Category: Weather
Type: INT

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
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.
Date: Saturday, April 14, 2007       Time: 09:00       EST
RegionID: NPCC       Ctrl Area: ISNE
AssociatedUtilities: National Grid New England Control Center
        / 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
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.

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
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
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
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: 56000    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
**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.
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
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: 150 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
Equipment Failure

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
On May 15, 2007 at 9:39 PM, a severe storm entered the utilities service area. At the storm's 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
Date: Wednesday, May 16, 2007      Time: 18:00      EDT
RegionID: NPCC      Ctrl Area: ISNE
AssociatedUtilities: CT Area      Type: INT
Cause: Weather - High Wind Gusts and Rain      Cause Category: Weather
MW: Customers: 67000
Restoration: Initial      Final -  5/19/2007 6:00:00 AM

Event Description - Public
DESCRIPTION: On May 16, 2007 at 6 PM a severe storm entered the utilities service area. The transmission system was not affected. The impact occurred in the distribution system. A total of 67000 customers were affected. On May 18 at noon 4431 customers were still out of service due to storm related outages. The estimated time of restoration is 12:00 on May 19.

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
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.

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: Human Error
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
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.

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
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
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 – Lightening 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

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 – Lightening 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
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.

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
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.

**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.

**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
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

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
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 7th. 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
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
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.

**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.

**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 arrester 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
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
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 11:30PM 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
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
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

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
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
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.

DESCRIPTION: Public Appeal - Weather - Hot

CAUSE: Public Appeal - Weather - Hot

CAUSE CATEGORY: Public Appeal

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
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.

**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**
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.

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
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.

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

RegionID: MAIN    Ctrl Area: AMRN

Associated Utilities: 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
Human Error

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.

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  

**Associated Utilities:** 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

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**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 one 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
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.

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

**Associated Utilities:** 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

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**Types of Interruptions:** INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available
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.
Date: Saturday, August 25, 2007  Time: 10:58  EDT
RegionID: SERC  Ctrl Area: DUK
AssociatedUtilities: Generation Station  Type: UO
Cause: Equipment Failure - Relay  Cause Category: Equipment Failure
MW: Customers:  Customer Demand

Event Description - Public
DESCRIPTION: On August 25, 2007 at 10:58:47 am, the utility experienced a fault in a step-up transformer bank at a generation station. The fault caused seven generating units and five transmission lines to trip. The relay operations are being investigated.

TYPE OF EMERGENCY: N/A
CAUSE OF INCIDENT: N/A
ACTIONS TAKEN: N/A
REPORT CRITERIA: NERC EOP-004 Report

Types of Interruptions: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available
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
Wednesday, August 29, 2007  13:53 PDT

RegionID: WECC-CAMX   Ctrl Area: CISO

Associated Utilities: City of Modesto

Cause: Animal Contact - VEGETATION

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 Category: Animal Contact

MW: 26000

Customers: 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
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.

**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.
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
Monday, September 03, 2007  12:30  PDT

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

**AssociatedUtilities:** San Diego Area  

**Cause:** Weather – High Temperatures & Humidity  

**Cause Category:** Public Appeal  

**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.

**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, 2007  Time: 07:53 CDT
RegionID: ERCOT  Ctrl Area: ERCO
Associated Utilities: 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
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
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
DESCRIPTION: On Sept 17, 2007 at 7:01 PM, a radial utility fed by another utility through a 138 kV substation experienced separation due to the tripping of a breaker. This left the city served by the radial utility without power. It was later determined that a relay had cause the breaker to trip.

TYPE OF EMERGENCY:  Major Transmission System Interruption ; Major Distribution System
CAUSE OF INCIDENT:  Electrical System Separation – Islanding
ACTIONS TAKEN:  Repaired/Restored
REPORT CRITERIA: OE-417 DOE #3 – Complete operational failure or shut-down of the transmission and/or distribution electrical system

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

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.

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.

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.

TYPES OF INTERRUPTIONS: INT = Customer Interruptions; UO = Unusual Occurrences; DR = Demand Reduction
VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available
Electrical System Separation – Islanding

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
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 – Islanding   Cause Category: Weather

MW: n/a   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 – Islanding  Cause Category: Weather
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
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
Wednesday, October 03, 2007 16:35 EDT

NPCC-HQ

10/3/2007 5:14:00 PM

Human Error - Line Load Limit Exceeded

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

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
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: Animal Contact
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
**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.
Date: Monday, October 15, 2007       Time: 03:14       PDT
RegionID: WECC-NWPP       Ctrl Area: PACE
AssociatedUtilities: PACE Area
Cause: Off-Normal Operation – Specific
Cause Being Investigated
Type: UO
CAUSE CATEGORY: Off-Normal Operation

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
Thursday, October 18, 2007 15:00 PDT

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
Monday, October 22, 2007 14:01 PDT

WECC-CAMX Ctrl Area: CISO

AssociatedUtilities: SCE -- LA Area of CA

Fires - Brush Fires

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
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
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.

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
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
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.

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

VR = Voltage Reductions; PA = Public Appeal; N/A = Not Available
Sunday, November 11, 2007 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: 244000

Customers: 244000

Customer Demand

Restoration: Initial

Final - 11/12/2007 2:00:00 PM

Event Description - Public

DESCRIPTION: On Nov 11, 207 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

ASSOCIATED UTILITIES: 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
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
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
Weather - Wind and Rain Storm

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

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.
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-- 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
Date: Sunday, December 02, 2007       Time: 10:00       PST
RegionID: WECC-NWPP       Ctrl Area: BPAT
AssociatedUtilities: Pacific Northwest Area       Type: INT
Cause: Weather - Wind and Rain Storm       Cause Category: Weather
MW: Customers: 33000       Customer Demand 125
Restoration: Initial       Final - 12/11/2007 7:28:00 PM

Event Description - Public
DESCRIPTION: Storm event with wind gusts reported by as high as 124 MPH. Caused multiple outages resulting in outage to about 33,000 customer. Affected FIRM not INTERRUPTABLE
CAUSE/ACTION: N/A
THRESHOLD CRITERIA: NONE, Letter Report
**Date:** Sunday, December 02, 2007  
**Time:** 11:00 EST  
**RegionID:** NPCC  
**Ctrl Area:** ISNE  
**Associated Utilities:** New England Area  
**Type:** UO  
**Cause:** Fuel Supply Problems - Gas Supply Interruption  
**Cause Category:** Fuel Supply Problems  

<table>
<thead>
<tr>
<th>MW:</th>
<th>Customers:</th>
<th>Customer Demand</th>
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<tr>
<td>Initial</td>
<td>Final - 12/2/2007 2:15:00 PM</td>
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**Event Description - Public**

DESCRIPTION: On Sunday, 12/2/2007, a utility reported an Actions During a Capacity Deficiency. Due to an ongoing fuel problems, at 11:00 am, the loss of approx 620 MW of on line capacity. At 2:15 PM, the action was cancelled as other generation became available.

CAUSE/ACTION: N/A  
THRESHOLD CRITERIA: NONE, Letter  

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

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
EVENT DESCRIPTION - PUBLIC

DESCRIPTION: The utilities meteorologist issued a freezing rain weather alert for the service area starting 12/9/2007 Sunday night through the following Tuesday morning. Icing began to be noticeable starting Sunday evening continuing through Tuesday morning. The customer outage history peaked at 256,663 on 12/10 evening / 12/11 morning. The amount of demand lost is estimated to be in the neighborhood of 800 Mw based on load forecast vs the actual load for 12/10. Generation capacity was not taken off line due to the reduced load during the ice storm. As of 12/19 only 6,000 customers were without service and were in the process of being restored.

The utility did not lose any generation during the freezing rain event. The control area coordinators in conjunction with the Regional RC monitored the bulk system using security analysis programs. Contingencies were controlled through the TLR process.

The utility experienced RTU communication failures on the bulk system on 12/10/2007. Bulk transmission line circuits outages were reported to DOE. Weather permitting, aerial patrols were used to access the damage to the transmission lines.

CAUSE/ACTION: Transmission equipment; repair and restore.

THRESHOLD CRITERIA: #11. Loss of electric service to more than 50,000 customers for 1 hour or more.
DESCRIPTION: The Dedicated Path Logic (DPL) SPS miss-operated at approximately on 12/10/2007 at 9:12 am. The miss-operation was traced to an SPS logic problem that allowed a line out condition to be satisfied by opening only one of two terminal breakers. The logic scheme was corrected and successfully tested at 12:30 on 12/10. At the time of the miss-operation, no generation was armed and there was no system impact.

CAUSE/ACTION: N/A

THRESHOLD CRITERIA: NONE, EOP-004-1 Reported
DATE:  Tuesday, December 11, 2007   TIME:  04:00 CST

REGIONID:  SPP   CTRL AREA:  OKGE

ASSOCIATED UTILITIES:  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
Wednesday, December 12, 2007

System Protection

DESCRIPTION: On 12/12/2007 at 1:49 am the utility simultaneously 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
Wednesday, December 12, 2007  08:55  MST

RegionID: WECC-AZNM    Ctrl Area: PNM
Associated Utilities: 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
Thursday, December 13, 2007 11:23 EST

Equipment Failure - Feeder Fault

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

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
DESCRIPTION: On Sunday, 12/16/2007 the utility was impacted by a significant winter storm event, which included high winds and freezing rain with up to 1.5” of ice accumulation. This resulted in widespread damage to equipment within the service territory. The damage included downed wire and poles due to the excessive weight of the ice as well as trees fallen into facilities. This event was further hampered by continued sub-freezing weather, which made it difficult to access and remove ice from downed lines and equipment. Mutual assistance was provided other utilities, as well as contractors, including 196 Forestry Workers and 419 Line Workers, in addition to the 200 Line Workers from the affected utility.

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
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
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
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