

2009 NERC Number of Disturbances by Region

Region	Disturbances
FRCC	2
MRO	2
NPCC	6
RFC	33
SERC	32
SPP	8
TRE	15
WECC	30

Total Number of Disturbances: 128

2009 NERC Disturbance Index

Date	Region	Utilities	Type	MW	Customers	Cause
05-Jan-09	TRE	ERCO	INT		159019	Weather-Rain, Ice
07-Jan-09	SERC	DUK	INT	300	70000	Weather-Rain Storm/High Winds
08-Jan-09	FRCC	FPL	INT	108	32000	UNKOWN-Suspected: Bird Droppings
17-Jan-09	RFC	PJM	UO			Fuel Supply Problems-Coal Inventory
22-Jan-09	RFC	IPL	INT	51	9700	Human Error-Crane Overhead Fault
25-Jan-09	RFC	MISO	UO			OSL Violation-Post Contingent Low Voltages
27-Jan-09	SERC	EKPC	UO			Weather-Rain, High Winds, Snow
27-Jan-09	SPP	EES	INT		490000	Weather-Rain, Ice, Snow
27-Jan-09	SERC	AECI	INT	200	62500	Weather-Rain, High Winds, Snow
27-Jan-09	SERC	BREC	UO			Weather-Rain, Ice, Snow
27-Jan-09	SERC	EES	INT		52000	Weather-Rain, Ice, Snow
27-Jan-09	TRE	ERCO	INT		59402	Weather-Rain, Ice, Snow
27-Jan-09	SERC	LGEE	INT		383000	Weather-Rain, Ice, Snow
27-Jan-09	SERC	EES	INT	60	13500	Weather-Rain, Ice, Snow
27-Jan-09	SERC	TVA	INT	850	1	Weather-Rain, Ice, Snow
28-Jan-09	SERC	AMMO	UO			Weather-Rain, Ice, Snow
28-Jan-09	RFC	MISO	INT		230000	Weather-Rain, Ice, Snow
28-Jan-09	SERC	EES	INT	50	7000	Weather-Rain, Ice, Snow
28-Jan-09	RFC	SIGE	INT		67285	Weather-Rain, Ice, Snow
28-Jan-09	RFC	CIN	INT		57300	Weather-Rain, Ice, Snow
28-Jan-09	SERC	TVA	INT		109527	Weather-Rain, Ice, Snow
29-Jan-09	RFC	PJM	INT		210000	Weather-Rain, Ice, Snow
11-Feb-09	TRE	ERCO	INT		64801	Weather-Rain, Ice, Snow
11-Feb-09	RFC	MISO	INT	10	4309	Weather-Rain, Ice, Snow
11-Feb-09	RFC	PJM	INT		279813	Weather-Rain, Ice, Snow, High Winds
11-Feb-09	RFC	PJM	INT		374644	Weather-Rain, Ice, Snow, High Winds
11-Feb-09	SERC	LGEE	INT		78000	Weather-Thunderstorm, High Winds
11-Feb-09	RFC	CIN	INT	350	63000	Weather-Rain, Ice, Snow

Date	Region	Utilities	Type	MW	Customers	Cause
12-Feb-09	RFC	PJM	INT	168	184000	Weather-Rain, Ice, Snow, High Winds
12-Feb-09	RFC	PJM	INT	130	132000	Weather-Rain, Ice, Snow, High Winds
23-Feb-09	NPCC	ISNE	INT		12223	Weather-Rain, Ice, Snow, High Winds
01-Mar-09	WECC	EPE	INT	250	116000	Equipment Failure-Substation Breaker
01-Mar-09	SERC	SOCO	INT	75	60000	Weather-Rain, Ice, Snow, High Winds
01-Mar-09	SERC	DUK	INT	1000	180000	Weather-Rain, Ice, Snow, High Winds
01-Mar-09	SERC	PJM	INT	210	217000	Weather-Rain, Ice, Snow, High Winds
03-Mar-09	RFC	PJM	PA			Weather-Rain, Ice, Snow, High Winds
04-Mar-09	SERC	SOCO	UO			Human Error-Misoperation of Water Valve
04-Mar-09	RFC	PJM	UO			SPS-Suspected System Protection Misoperation
23-Mar-09	WECC	AESO	UO			Weather-UNKNOWN
26-Mar-09	SERC	TVA	N/A			Equipment Failure-Transformer
06-Apr-09	RFC	PJM	INT	75	70793	Weather-Rain, Ice, Snow, High Winds
06-Apr-09	SERC	CPLC,CPLW	INT	27	4300	Equipment Failure-Transmission
10-Apr-09	SERC	SOCO	INT	162	56679	Weather-Thunderstorm
13-Apr-09	SERC	SOCO	INT	526	237000	Weather-Spring Thunderstorm, High Winds
19-Apr-09	TRE	ERCO	UO			Cyber-Software Virus
23-Apr-09	WECC	PSEI	UO			Equipment Failure-Substation
23-Apr-09	WECC	CISO	INT	512	280000	Human Error-Construction Mishap
24-Apr-09	SPP	CECD	INT	32	11000	Human Error-Construction Mishap
25-Apr-09	RFC	MISO	INT		125000	Weather-Rain Storm/High Winds
27-Apr-09	TRE	ERCO	INT	176	158000	Weather-Rain Storm/High Winds
08-May-09	SPP	EDE	INT	266	83000	Weather-Derecho Windstorm
08-May-09	SERC	AMMO	INT	300	68800	Weather-Derecho Windstorm
13-May-09	NPCC	HQT	UO			Fire-Vegetation/Trees
29-May-09	SERC	BREC	INT	350	1	Equipment Failure-Capacitor
04-Jun-09	FRCC	NSB	INT	32	13639	Weather-Lightning

Date	Region	Utilities	Type	MW	Customers	Cause
05-Jun-09	WECC	PACE,PACW	INT	1	70	Equipment Failure-Relay-Islanding
09-Jun-09	RFC	PJM	INT	60	86482	Weather-Thunderstorms
10-Jun-09	TRE	ERCO	INT		800000	Weather-Thunderstorms
12-Jun-09	SERC	TVA	INT	860	136000	Weather-Lightning, Thunderstorms
12-Jun-09	SERC	EES	INT		79784	Weather-Thunderstorms
12-Jun-09	SERC	SOCO	INT	290	102000	Weather-Lightning, Thunderstorms
13-Jun-09	WECC	AESO	UO			Equipment Failure-Unknown
14-Jun-09	NPCC	NYIS	UO			Equipment Failure-Unknown
16-Jun-09	WECC	CISO	UO			Equipment Failure-Unknown
17-Jun-09	SPP	KCPL	INT	258	48858	Policy Violation-Vegetation Interference
19-Jun-09	RFC	PJM	INT	75	99000	Weather-Lightning, Thunderstorms
19-Jun-09	RFC	PJM	INT		245000	Weather-Lightning, Thunderstorms
24-Jun-09	SPP	LAGN	PA			Public Appeal-Press Release
25-Jun-09	RFC	PJM	UO			Equipment Failure-CCVT
25-Jun-09	TRE	ERCO	PA			Public Appeal-Heat Wave
25-Jun-09	RFC	MISO	INT		118000	Weather-Lightning, Thunderstorms
26-Jun-09	RFC	CIN	INT		85000	Weather-Lightning, Thunderstorms
26-Jun-09	NPCC	ISNE	INT		50752	Weather-Lightning, Thunderstorms
02-Jul-09	NPCC	ISNE	UO			Weather-Lightning
04-Jul-09	WECC	AESO	UO			Equipment Failure-Unknown
04-Jul-09	WECC	AESO	UO			Equipment Failure-Unknown
07-Jul-09	TRE	ERCO	UO			Public Appeal-Generation Inadequacy
08-Jul-09	TRE	ERCO	UO			Public Appeal-Heat Wave
13-Jul-09	WECC	AESO	UO			Weather-Lightning Strike/Equipment Failure
14-Jul-09	SPP	AEPT	PA			Public Appeal-Load Reduction
15-Jul-09	SPP	AEPT	PA			Public Appeal-Load Reduction
16-Jul-09	SPP	AEPT	PA			Public Appeal-Load Reduction
17-Jul-09	SERC	CPLC,CPLW	INT	56	11878	Weather-Thunderstorm, Lightning
18-Jul-09	TRE	ERCO	INT		73000	Weather-Thunderstorms, High Winds

Date	Region	Utilities	Type	MW	Customers	Cause
18-Jul-09	WECC	AESO	UO			Weather-Thunderstorms, Tornado
20-Jul-09	SERC	CPLC,CPLW	INT	37	6720	Equipment Failure-Unknown
20-Jul-09	WECC	PSCO	INT	150	86058	Weather-Thunderstorms, Lightning, High Winds, Hail
21-Jul-09	WECC	CISO	INT	136	1	Equipment Failure-High Bearing Vibration
26-Jul-09	SERC	CPLC,CPLW	INT	12	3878	Equipment Failure-Unknown
28-Jul-09	WECC	PACE,PACW	INT	316		Equipment Failure-Capacitor Bank
30-Jul-09	MRO	MHEB	INT		38073	Animal Contact
04-Aug-09	RFC	CIN	INT	50	63700	Weather-Thunderstorms-Lightning-High Winds
05-Aug-09	TRE	ERCO	PA			Public Appeal-High Temps-Generation Limitations
06-Aug-09	TRE	ERCO	UO			Voltage Drop-PH-PH Fault
07-Aug-09	RFC	PJM	INT		137000	Weather-Summer Storm, High Winds, Rain
09-Aug-09	RFC	PJM	INT		58156	Weather-High Winds
12-Aug-09	TRE	ERCO	INT		70872	Weather-Thunderstorms
14-Aug-09	RFC	IPL	INT	45.7	8391	Weather-Thunderstorm, Lightning
21-Aug-09	TRE	ERCO	INT	544	80000	Weather-Thunderstorms-High Winds
29-Aug-09	MRO	WAUE	INT	69	18	Equipment Failure-Breaker Operation
31-Aug-09	WECC	CISO	PA			Public Appeal-Wildfires
02-Sep-09	WECC	AESO	UO			Equipment Failure
04-Sep-09	WECC	AESO	UO			Equipment Failure-Generation-Tube Leak
07-Sep-09	WECC	AESO	UO			Equipment Failure-Generation
09-Sep-09	WECC	AESO	UO	16		Equipment Failure-Generation-Tube Leak
19-Sep-09	WECC	CFE	UO	110		Earthquake-Firm Load Lost
07-Oct-09	RFC	PJM	INT		53000	Weather-High Winds
07-Oct-09	RFC	DEMO	INT		75000	Weather-Fall Storm, High Winds, Rain
09-Oct-09	SERC	EES	INT	24	7102	Weather-Complete Electrical System Failure
09-Oct-09	SERC	EES	INT		56000	Weather-Cold Storm
09-Oct-09	WECC	CISO	UO			Equipment Failure-Breaker

Date	Region	Utilities	Type	MW	Customers	Cause
13-Oct-09	WECC	PACE,PACW	INT	350	859554	Weather-Fall Storm, High Winds, Rain
13-Oct-09	WECC	WAUW	INT	101	35,000	Weather-Ice, Shed Firm Load, Ground Fault
13-Oct-09	WECC	SMUD	INT	90	94000	Weather-Tropical Storm
13-Oct-09	WECC	CISO	PA			Public Appeal-Downed Transmission
22-Oct-09	WECC	AESO	UO			Human Error-Relay Operation-Islanding
30-Oct-09	TRE	CECD	INT	28	11000	Equipment Failure-Transformer Bushing
12-Nov-09	SERC	DUK	INT	400	335000	Weather-Storm
13-Nov-09	RFC	PJM	INT	44	13490	Weather-High Winds, Coastal Storm
18-Nov-09	WECC	CISO	UO			Human Error-Operator
07-Dec-09	WECC	CISO	PA			Weather-Cold, Inadequate Electric Resources to Serve Load
08-Dec-09	WECC	CISO	PA			Weather-Cold, Inadequate Electric Resources to Serve Load
09-Dec-09	RFC	AEPT	INT		89800	Weather-Snow, Ice, High Winds
09-Dec-09	RFC	PJM	INT		52424	Weather-Snow, Sleet, High Winds
15-Dec-09	NPCC	HQT	UO	2200		UNKNOWN-To Be Determined
18-Dec-09	RFC	AEPT	INT		299713	Weather-Snow, Sleet, High Winds
18-Dec-09	SERC	CPLC,CPLW	INT		67000	Weather-Snow, Sleet, High Winds
21-Dec-09	WECC	AESO	UO			Weather-Galloping Conductors

2009 NERC Disturbance Reports

Start Date - Time: 1/5/2009 5:00:00 AM CST **Restoration - Final:** 1/6/2009 6:00:00 PM

Affected Utility: Oncor Electric Delivery Company LLC

Region: TRE **Balancing Authority ID:** ERCO **Type:** INT

Cause: Weather-Rain, Ice **Category:** Weather

GenMW: **# of Customers:** 159019 **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 5 at 05:00, weather conditions across the utility's system deteriorated due to rain and ice. By noon, significant outages occurred across the system, and all available field employees and contractors were held over and transitioned to restoration efforts (max was 1,500). The ice storm affected the distribution system ONLY; there were NO transmission interruptions related to the ice storm, but there were three substation-related issues that affected customers. Also, a total of 108 feeders were affected by the storm. At the ice storms height, Jan 5 at 15:00, about 55,636 customers were without service. All customers were restored by Jan 6 at 18:00.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/7/2009 5:00:00 PM EST **Restoration - Final:** 1/7/2009 8:05:00 PM

Affected Utility: Duke Energy-Carolinas

Region: SERC **Balancing Authority ID:** DUK **Type:** INT

Cause: Weather-Rain Storm/High Winds **Category:** Weather

GenMW: **# of Customers:** 70000 **Customer Demand:** 300

Event Description:

DESCRIPTION: On Jan. 7 at 17:00, a storm with sustained winds of 25-35 MPH and gusts of 45 MPH entered the utility's service area. The storm caused the loss of over 70,000 customers on Jan 7 from 17-20:00. NO generation and NO major transmission were affected. By 20:00, customer outages were below 50,000. Power restoration to all customers is expected to by COB Jan 8.

TYPE OF EMERGENCY: Other - Storm with high winds

ACTION(s) TAKEN: Repaired/Restored

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/8/2009 11:43:16 AM EST **Restoration - Final:** #####
Affected Utility: Florida Keys Electric Coop.
Region: FRCC **Balancing Authority ID:** FPL **Type:** INT
Cause: UNKOWN-Suspected: Bird Droppings **Category:** UNKNOWN
GenMW: **# of Customers:** 32000 **Customer Demand:** 108

Event Description:

DESCRIPTION: On Jan. 8 at 23:43, the utility reported to the Regional Security Coordinator that a foreign object, possibly from a nesting bird, tripped a 138 kV line. One end of the line cleared, but a sticky breaker on the other end initiated a breaker fail scheme starting a timer to trip around the sticky breaker. Coincidentally, a neighboring 138 kV line also saw the fault and back feed it, initiating an over-current element to clear the fault resulting in both 138kV lines clearing the fault, disconnecting the affected area. All load was interrupted for about 27 minutes; 108 MW and 32,000 customers. The system was restored on Jan 9 at 00:11. The cause remains unknown. Sabotage or terrorism is not suspected.

TYPE OF EMERGENCY: Major Transmission System Interruption; Other.

ACTION(s) TAKEN: Other; Informed RC Security Coordinator

FILING CRITERIA(s): DOE OE-417 #: NOT Specified

2009 NERC Disturbance Reports

Start Date - Time: 1/17/2009 8:00:00 AM CST **Restoration - Final:** #####
Affected Utility: State Line Energy – Hammond, IN
Region: RFC **Balancing Authority ID:** PJM **Type:** UO
Cause: Fuel Supply Problems-Coal Inventory **Category:** Fuel Supply Problems
GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 17 at 08:00, the utility reported to its Reliability Coordinator that its fuel (coal) inventory storage level was at 50 percent or less of normal for Unit 4. Severe weather is causing coal train and unloading delays. The coal inventory is projected to recover by Jan 25.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Other

FILING CRITERIA(s): DOE OE-417 # 12

2009 NERC Disturbance Reports

Start Date - Time: 1/22/2009 4:00:00 PM CST **Restoration - Final:** #####
Affected Utility: Crawfordsville Electric Light and Power
Region: RFC **Balancing Authority ID:** IPL **Type:** INT
Cause: Human Error-Crane Overhead Fault **Category:** Human Error
GenMW: **# of Customers:** 9700 **Customer Demand:** 51

Event Description:

DESCRIPTION: On Jan. 22 at 16:02, the utility's system full system was interrupted. The utility is served by a neighboring utility through a single 138 kV substation which has 2 feeds. One feed was out of service due to maintenance leaving only the feed from the south. This feed tripped at 16:02 and the cause was a crane, which was moving a gas pipeline at the time, making contact with a phase resulting in it fault (the line burned down). The line that was under maintenance was place back in service thus restoring the affected utility's system.

TYPE OF EMERGENCY: Major Transmission System Interruption

ACTION(s) TAKEN: Other

FILING CRITERIA(s): DOE OE-417 # 3

2009 NERC Disturbance Reports

Start Date - Time: 1/25/2009 1:20:00 AM EST **Restoration - Final:** #####

Affected Utility: MISO

Region: RFC **Balancing Authority ID:** MISO **Type:** UO

Cause: OSL Violation-Post Contingent Low Voltages **Category:** OSL Violation

GenMW: 150 **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 25 at 01:20, the contingency analysis software showed post contingent low voltages on the loss of a 345 kV line - actual voltages were within limits. The post contingent low voltages were due to planned transmission and generation outages. Post contingent voltages were seen approximately at 120 kV on the 161 kV systems. Normally open transformers were placed into service to provide support for the 161 kV systems. This relieved the post contingent low voltages in the contingency analysis. Transformers normally out of service will be placed in service prior to any planned outages re-occurring.

TYPE OF EMERGENCY: Other - NERC IROL Violation

ACTION(s) TAKEN: Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 1/27/2009 5:03:00 AM EST **Restoration - Final:** #####

Affected Utility: East Kentucky Power Coop

Region: SERC **Balancing Authority ID:** EKPC **Type:** UO

Cause: Weather-Rain, High Winds, Snow **Category:** Weather

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 27 at 05:03, a significant ice storm hit the utility's service area and resulted in the loss of 69 kV transmission lines and distribution substations. Additionally, two 161 kV transmission lines and two 345 kV facilities were affected. About 31 transmission lines were affected, as well as 78 distribution substations. About 190,000 retail consumers lost service. Transmission service to all but three distribution substations was restored by Jan 30 and service to the remaining substations was restored on Jan 31.

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

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/27/2009 8:00:00 AM CST **Restoration - Final:** #####

Affected Utility: Arkansas Electric Cooperative Corporation

Region: SPP **Balancing Authority ID:** EES **Type:** INT

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

GenMW: **# of Customers:** 490000 **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 27 and 28, twelve distribution utility's lost power to about 198,800 customers due to an ice and snow storm. Distribution systems damage is extensive; about 25,000 poles down. The total number of customers is about 490,000.
TYPE OF EMERGENCY: Major Distribution System Interruption; Other
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/27/2009 11:00:00 AM CST **Restoration - Final:** #####

Affected Utility: Associated Electric Cooperative Inc

Region: SERC **Balancing Authority ID:** AECI **Type:** INT

Cause: Weather-Rain, High Winds, Snow **Category:** Weather

GenMW: **# of Customers:** 62500 **Customer Demand:** 200

Event Description:

DESCRIPTION: On Jan. 27 at 11:00, a major winter storm with heavy freezing rain moved into south central and southeastern Missouri. The storm caused heavy damage to the transmission system (500, 345 and 161 kV lines) and to the distribution systems of five utility's. An estimated maximum total of 62,500 distribution customers were without power; overall about 198,800 customers were affected. As of Jan 30, this number was reduced to less than 50,000.
TYPE OF EMERGENCY: Major Transmission System Interruption; Major Distribution System Interruption; Other
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE-OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/27/2009 12:00:00 PM CST **Restoration - Final:** #####

Affected Utility: Big Rivers Electric Corp.

Region: SERC **Balancing Authority ID:** BREC **Type:** UO

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

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 27 at noon, the utility experienced multiple transmission and generation outages due to a wide-spread ice storm. Numerous customers were without service and affected telephone communications. On Jan 28, the 138 kV interconnection was opened at the RC's direction due to potential first contingency loading issues resulting in a system load reduction. This was accomplished by cycling the service to several industrial customers. The utility continues (Feb 3) to restore power and the customer outage count has been reduced to fewer than 50,000. Restoration crews are being supported by crews from other electric utility's and contractors.

TYPE OF EMERGENCY: Major Transmission System Interruption

ACTION(s) TAKEN: Shed Firm Load; Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 6 and 11

2009 NERC Disturbance Reports

Start Date - Time: 1/27/2009 1:46:00 PM CST **Restoration - Final:** #####

Affected Utility: Entergy - Arkansas

Region: SERC **Balancing Authority ID:** EES **Type:** INT

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

GenMW: **# of Customers:** 52000 **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 27 at 13:46 a major ice storm affected the utility's service area resulting in about 50,000 customers out of service for over an hour. The forecast for icing conditions continues until Jan 28. The utility pre-positioned restoration crews and management prior to the on set of the event and immediately enacted restoration efforts in those areas where it is safe to work under these extreme weather conditions.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/27/2009 3:43:00 PM CST **Restoration - Final:** #####
Affected Utility: AEP-West CSWS
Region: TRE **Balancing Authority ID:** ERCO **Type:** INT
Cause: Weather-Rain, Ice, Snow **Category:** Weather
GenMW: **# of Customers:** 59402 **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 27 at 15:43, the utility experienced an ice storm; reports of ice of ¾ inch to 1 inch causing damage to equipment and lines. As of Jan 27 at 15:43, 56,824 customers were out of power. This peaked on 20:00 Jan 27 at 59,402. Crews conducted repairs and restored circuits as safely as conditions permit. Restoration efforts are expected to continue to Jan 31.

TYPE OF EMERGENCY: Major Distribution System Interruption; Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/27/2009 5:00:00 PM CST **Restoration - Final:** #####
Affected Utility: E.ON-US LLC - (LG&E and KU)
Region: SERC **Balancing Authority ID:** LGEE **Type:** INT
Cause: Weather-Rain, Ice, Snow **Category:** Weather
GenMW: **# of Customers:** 383000 **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 27 at 17:00, a snow and ice storm entered the utility's service territory affecting about 383,000 customers. Significant transmission (17 lines above 100 kV) and distribution facilities were lost. The utility also lost generators due to transmission facility failure. Restoration is estimated to take up to 2 weeks.
TYPE OF EMERGENCY: Transmission Equipment; Weather or Natural Disaster
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/27/2009 9:00:00 PM CST **Restoration - Final:** #####
Affected Utility: Owensboro, KY Municipal Utilities
Region: SERC **Balancing Authority ID:** EES **Type:** INT
Cause: Weather-Rain, Ice, Snow **Category:** Weather
GenMW: **# of Customers:** 13500 **Customer Demand:** 60

Event Description:

DESCRIPTION: On Jan. 27 at 21:00, the utility experienced an ice storm with icing of 1.5 or more inches causing extensive damage to distribution and internal transmission systems. Numerous circuit lockouts and customers (13,500) were without power. The utility is currently assessing damage and making repairs. Preliminary estimates are the entire system will be restored to normal in 72 hours.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/27/2009 9:45:00 PM CST **Restoration - Final:** #####

Affected Utility: TVA

Region: SERC **Balancing Authority ID:** TVA **Type:** INT

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

GenMW: **# of Customers:** 1 **Customer Demand:** 850

Event Description:

DESCRIPTION: On Jan. 27 at 21:45, one of the utility's generating plant tripped and an industrial (primary) 161 kV switchyard lost service. Total loss of firm load was about 850 MW. The area had been experiencing arctic storm (snow, ice, and freezing rain) conditions. Ice exceeded 2 inches in some places with average reports showing 0.75" to 1.0" of radial accumulation. As of Jan 29, all affected transmission facilities were returned to service and the industrial facility was returning to service.

TYPE OF EMERGENCY: Major Transmission System Interruption

ACTION(s) TAKEN: Other

FILING CRITERIA(s): DOE OE-417 # 5

2009 NERC Disturbance Reports

Start Date - Time: 1/28/2009 12:10:00 AM CST **Restoration - Final:** #####

Affected Utility: AMEREN

Region: SERC **Balancing Authority ID:** AMMO **Type:** UO

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

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 28 at 00:10, winter storms moved through the utility's service territory. Heavy snow and ice accumulation caused breaker operations that resulted in approximately 300 MWs of load lost. This incident is isolated to one customer. Load has begun to be restored as of 00:40 EST on Jan 28.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Implemented a Warning, Alert, or Contingency Plan; Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 5

2009 NERC Disturbance Reports

Start Date - Time: 1/28/2009 3:00:00 AM EST **Restoration - Final:** #####
Affected Utility: MISO – IL, IN, OH, KT
Region: RFC **Balancing Authority ID:** MISO **Type:** INT
Cause: Weather-Rain, Ice, Snow **Category:** Weather
GenMW: **# of Customers:** 230000 **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 28 at 03:00, snow and ice storms moved through the utility's service territory causing outages to over 130,000 customers as a result of distribution and sub-transmission lines being forced out. Over 230,000 customers total were without electric service as a result of sub-transmission and distribution lines being forced out-of-service due to the severe weather conditions.

TYPE OF EMERGENCY: Major Distribution System Interruption; Other

ACTION(s) TAKEN: Implemented a Warning, Alert, or Contingency Plan; Repaired/Restored

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/28/2009 4:00:00 AM CST **Restoration - Final:** #####

Affected Utility: Henderson Municipal Power & Light

Region: SERC **Balancing Authority ID:** EES **Type:** INT

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

GenMW: **# of Customers:** 7000 **Customer Demand:** 50

Event Description:

DESCRIPTION: On Jan. 27, the utility experienced an ice storm with icing of 1.5 inches or greater causing extensive damage to distribution and internal transmission systems. Numerous circuit lockouts and customers are without power. The utility experienced a total communication blackout. As of Jan. 29 communications remain spotty after the ice storm passed through the affected area. About 7,000 of 12,600 customers are without power. The utility is assessing damage and making repairs; estimates are that the system may be fully restored in 96 hours.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # NOT Specified

2009 NERC Disturbance Reports

Start Date - Time: 1/28/2009 6:00:00 AM CST **Restoration - Final:** #####
Affected Utility: Southern Indiana G&E a.k.a., Vectren Energy
Region: RFC **Balancing Authority ID:** SIGE **Type:** INT
Cause: Weather-Rain, Ice, Snow **Category:** Weather
GenMW: **# of Customers:** 67285 **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 28 at 06:00, the utility's service area was hit by a severe ice storm causing loss of service to over 67,000 customers. The heavy loading on lines and trees affected the distribution system and tripped five (5) 69 kV lines. Repair and restore efforts were activated by the utility.
TYPE OF EMERGENCY: Major Distribution System Interruption; Other.
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/28/2009 7:50:00 AM CST **Restoration - Final:** #####

Affected Utility: Duke Energy-Midwest

Region: RFC **Balancing Authority ID:** CIN **Type:** INT

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

GenMW: **# of Customers:** 57300 **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 28 at 07:50, a winter storm consisting of ice, freezing rain, and snow hit the utility's service territory causing a loss of service to about 53,700 customers. Ice accumulations ranged from 0.5 to 1.0 inches. The ice and freezing rain mix changed to snow later in the morning with accumulations of an additional 2 to 4 inches. Assessment of the damage is continuing and there is no estimated restoration time.

TYPE OF EMERGENCY: Major Distribution System Interruption; Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/28/2009 9:00:00 AM CST **Restoration - Final:** #####

Affected Utility: TVA

Region: SERC **Balancing Authority ID:** TVA **Type:** INT

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

GenMW: **# of Customers:** 109527 **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 26 arctic cold temperatures settled into the northwest corner of the utility's service territory and combined with a storm system moving in from the west, causing freezing rain over the next two days. On Jan 28, ice accumulations caused the loss of service to about 110,000 customers. Ice exceeded 2 inches with average reports showing 0.75" to 1.0" of radial accumulation. Many trees came down and roads are virtually impassable off the major highways. There are currently three 500 kV transmission lines, twenty-two 161 kV transmission lines and six 69 kV lines out of service due to the storm. The utility's Emergency Operations Center was activated.

TYPE OF EMERGENCY: Major Distribution System Interruption; Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 1/29/2009 4:00:00 PM EST **Restoration - Final:** #####
Affected Utility: AEP-East – KY, WV, OH
Region: RFC **Balancing Authority ID:** PJM **Type:** INT
Cause: Weather-Rain, Ice, Snow **Category:** Weather
GenMW: **# of Customers:** 210000 **Customer Demand:**

Event Description:

DESCRIPTION: On Jan. 27 at 16:00, a winter storm deposited high levels of snow and ice (up to an inch) causing interruptions on the utility's transmission and distribution system. Initially, 57,700 customers were out of power, escalating at the storms peak to 210,000 customers at 14:00 on Jan 28. Restoration of equipment and lines continued and the number of affected customers was reduced to 47,000 at 03:00 on Jan 31.
TYPE OF EMERGENCY: Major Distribution System Interruption; Other
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 2/11/2009 2:30:00 AM CST **Restoration - Final:** #####
Affected Utility: CenterPoint Energy
Region: TRE **Balancing Authority ID:** ERCO **Type:** INT
Cause: Weather-Rain, Ice, Snow **Category:** Weather
GenMW: **# of Customers:** 64801 **Customer Demand:**

Event Description:

DESCRIPTION: On Feb. 11 at 02:30, the utility's service area was affected by a winter cold front that rapidly moved across the service area. Shortly after 01:30, the number of customer outages peaked at 64,801. By 03:30 the utility restored service to 36,000 of the affected customers

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 2/11/2009 2:40:00 AM CST **Restoration - Final:** #####
Affected Utility: Illinois Municipal Electric Agency
Region: RFC **Balancing Authority ID:** MISO **Type:** INT
Cause: Weather-Rain, Ice, Snow **Category:** Weather
GenMW: **# of Customers:** 4309 **Customer Demand:** 10

Event Description:

DESCRIPTION: On Feb. 11 at 02:40, the utility lost service to more than 50% of its customers for more than 15 min. The disturbance was caused by a broken string insulator on a 138 kV line which resulted in the tripping of a circuit breaker causing a switch to overload and burnout. The utility repaired the insulator and switch, and reset the breaker. Service to the affected customers was restored via a backup generator after one hour.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 2/11/2009 6:00:00 PM EST **Restoration - Final:** #####
Affected Utility: AEP-East – KY, WV, OH
Region: RFC **Balancing Authority ID:** PJM **Type:** INT
Cause: Weather-Rain, Ice, Snow, High Winds **Category:** Weather
GenMW: **# of Customers:** 279813 **Customer Demand:**

Event Description:

DESCRIPTION: On Feb. 10 at 18:00, a winter storm with high winds passed through the utility's service area. Wind gusts up to 72 mph caused damage to structures, poles, conductors and static wires to numerous transmission and sub-transmission circuits. As of Feb 13 at 14:30 the majority of the circuits have been restored within the OE-417 reporting criteria. □
TYPE OF EMERGENCY: Major Transmission System Interruption; Major Distribution System Interruption; Other.
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 2/11/2009 6:18:00 PM EST **Restoration - Final:** #####
Affected Utility: Allegheny Power System
Region: RFC **Balancing Authority ID:** PJM **Type:** INT
Cause: Weather-Rain, Ice, Snow, High Winds **Category:** Weather
GenMW: **# of Customers:** 374644 **Customer Demand:**

Event Description:

DESCRIPTION: On Feb. 11 at 18:18, the utility was affected by a cold front that rapidly moved across their service area. This cold front created a line of severe thunderstorms that moved at a rate of 60-70 mph and had reported wind gusts of >90 mph. By Feb 12, while the thunderstorms had moved out of the utility's service area, there were still sustained winds of 25-40 mph and gusts of 40-65 mph, causing additional damage.
TYPE OF EMERGENCY: Major Distribution System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 2/11/2009 7:00:00 PM CST **Restoration - Final:** #####
Affected Utility: E.ON US LLC - (LG&E and KU)
Region: SERC **Balancing Authority ID:** LGEE **Type:** INT
Cause: Weather-Thunderstorm, High Winds **Category:** Weather
GenMW: **# of Customers:** 78000 **Customer Demand:**

Event Description:

DESCRIPTION: On Feb. 11 at 19:00, severe thunderstorms with winds ranging from 55 to 60 miles per hour passed through the utility's service area. At the peak of the storm there were 78,000 customers without power. There was moderate damage to T&D facilities. Four transmission lines (100kV and above) were lost during the storm. Full restoration to all customers is expected Feb 14.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 2/11/2009 9:00:00 PM EST **Restoration - Final:** #####
Affected Utility: Duke Energy-Midwest
Region: RFC **Balancing Authority ID:** CIN **Type:** INT
Cause: Weather-Rain, Ice, Snow **Category:** Weather
GenMW: **# of Customers:** 63000 **Customer Demand:** 350

Event Description:

DESCRIPTION: On Feb. 11 at 21:00, thunderstorms and strong winds entered the utility's service area. At times wind gusts exceeded 50 mph. Strong winds are expected to remain in the service area until early morning Mar 12.
TYPE OF EMERGENCY: Other
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 2/12/2009 2:30:00 AM EST **Restoration - Final:** #####

Affected Utility: First Energy Corp

Region: RFC **Balancing Authority ID:** PJM **Type:** INT

Cause: Weather-Rain, Ice, Snow, High Winds **Category:** Weather

GenMW: **# of Customers:** 184000 **Customer Demand:** 168

Event Description:

DESCRIPTION: On Feb. at 02:30, the utility lost disturbance service to 90,000 customers due to high winds and outages to several 69 kV and one 138kV transmission line. The customer outages peaked at 184,000. The est. peak load loss was 168 MW at 03:00 on Feb 12. The utility dropped below 50,000 affected customers at 06:00 on Feb 12. Storm restoration continues with an expectation that nearly all customers will be restored by 23:59 hrs on Feb 14.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE-OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 2/12/2009 8:00:00 AM EST **Restoration - Final:** #####
Affected Utility: Penelec, a FirstEnergy Company
Region: RFC **Balancing Authority ID:** PJM **Type:** INT
Cause: Weather-Rain, Ice, Snow, High Winds **Category:** Weather
GenMW: **# of Customers:** 132000 **Customer Demand:** 130

Event Description:

DESCRIPTION: On Feb. 12 at 08:00, the utility experienced distribution outages caused by high-sustained winds resulting in loss of service to 132,000 customers over the course of the event. The est. peak load loss was 130 MW at 13:00 on Feb 12. Most customers were restored by 15:00 on Feb 15.
TYPE OF EMERGENCY: Other
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 2/23/2009 3:28:00 AM EST **Restoration - Final:** #####
Affected Utility: Central Maine Power Company
Region: NPCC **Balancing Authority ID:** ISNE **Type:** INT
Cause: Weather-Rain, Ice, Snow, High Winds **Category:** Weather
GenMW: **# of Customers:** 12223 **Customer Demand:**

Event Description:

DESCRIPTION: On Feb. 23 at 03:28, the utility's service area experienced a heavy snow storm causing damage to the sub-transmission and distribution systems. At peak, there were 121,223 customers out of service. As of Feb 27 at 02:38 all customers load has been restored.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 3/1/2009 12:15:00 AM MST **Restoration - Final:** #####

Affected Utility: El Paso Electric Company

Region: WECC **Balancing Authority ID:** EPE **Type:** INT

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

GenMW: **# of Customers:** 116000 **Customer Demand:** 250

Event Description:

DESCRIPTION: On Mar. 3 at 00:15, the utility experienced a system event due to a car striking a 69 kV pole. Breakers at A Substation operated correctly however a breaker at B Substation failed to open. The line fault continuation until the B Substation breaker cleared about 11 seconds after the initial fault. During the fault period, the utility's system experienced a severe voltage depression in the east, central and west areas service areas. The undervoltage relays operated correctly to mitigate the voltage decay. Restoration was started within 15 minutes of the initial fault and all customers were restored in about 3 hours. The affected line was repaired and the breaker fault will be investigated further.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 3/1/2009 4:00:00 PM CST **Restoration - Final:** #####

Affected Utility: Southern Company

Region: SERC **Balancing Authority ID:** SOCO **Type:** INT

Cause: Weather-Rain, Ice, Snow, High Winds **Category:** Weather

GenMW: **# of Customers:** 60000 **Customer Demand:** 75

Event Description:

DESCRIPTION: On Mar. 1 at 16:00, inclement weather rolled through the utility's territory. By 22:00, a total of 60,000 customers were out of service. With ongoing restoration efforts, the number of affected customers dropped below 50,000 at 23:15 on Mar 1 and less than 7,000 at 04:00 on Mar 2.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 3/1/2009 8:54:00 PM EST **Restoration - Final:** 3/3/2009 4:06:00 PM

Affected Utility: Duke Energy-Carolinas

Region: SERC **Balancing Authority ID:** DUK **Type:** INT

Cause: Weather-Rain, Ice, Snow, High Winds **Category:** Weather

GenMW: **# of Customers:** 180000 **Customer Demand:** 1000

Event Description:

DESCRIPTION: On Mar. 1 at 20:54, the utility's service area experienced a winter storm, ice and wet snow (up to 6 inches). Outages were on the distribution side and the transmission grid was not at risk from this event. By Mar 3 at 16:06, customer outages had decreased below 50,000.

TYPE OF EMERGENCY: Major Distribution System Interruption; Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 3/1/2009 10:00:00 PM EST **Restoration - Final:** 3/3/2009 6:00:00 PM

Affected Utility: Dominion – Virginia Power

Region: SERC **Balancing Authority ID:** PJM **Type:** INT

Cause: Weather-Rain, Ice, Snow, High Winds **Category:** Weather

GenMW: **# of Customers:** 217000 **Customer Demand:** 210

Event Description:

DESCRIPTION: On Mar. 1 at 22:00, a winter storm (sleet, freezing rain, snow, ice and rain mix) entered the utility's service territory causing multiple distribution outages. Restoration efforts were initiated and the utility brought in mutual assistance crews from neighboring utilities. The multi-day effort initially saw 83,000 customers at 13:00 on Mar 1 and peaked at 217,000 customers at 12:00 on Mar 2. By 18:00 on Mar 3 the number of affected customers was below the 50,000. All customers were expected to be restored in the evening on Mar 4.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 3/3/2009 10:00:00 PM EST **Restoration - Final:** 3/4/2009 8:17:00 PM

Affected Utility: AEP – Appalachian Power / Roanoke, VA Area

Region: RFC **Balancing Authority ID:** PJM **Type:** PA

Cause: Weather-Rain, Ice, Snow, High Winds **Category:** Weather

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Mar. 3 at 22:00, winter storms damaged two major EHV transmission lines in the utility's service area. One line is out of service due to a downed tower and the estimated return is Mar 11. The other line is out of service from storm damage and is estimated to return Mar 4 at 16:00 (actual was 20:17). On Mar 3, the utility issued a press release calling for voluntary customer conservation during the period 0600 to 0900 on Mar 4. On Mar 4 temperatures moderated and the load demand decreased which alleviated any further need for public appeals.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Made Public Appeals

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 3/4/2009 6:02:00 PM CST **Restoration - Final:** 3/4/2009 8:02:00 AM

Affected Utility: Southern Company

Region: SERC **Balancing Authority ID:** SOCO **Type:** UO

Cause: Human Error-Misoperation of Water Valve **Category:** Human Error

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Mar. 4 at 05:53, the utility's generating station was in normal operations - three units online and one unit offline for routine maintenance. At 05:54, all general service water to the facility was lost as a result of plant personnel erroneously tagging and closing the wrong valve. The direct cause of this event is the closing of a 42-inch manual isolation valve from the service water pump header causing a loss of service water flow - to the main turbine oil coolers and various other coolers throughout the plant. Over a period of 12 minutes, the Operators subsequently removed the three online units from service in order to protect the equipment from damage until general service water could be restored. General service water was re-established and the units were back online on or before Mar 4 at 08:02 and at full load later that morning. The root cause of this event is a human performance rule-based error or knowledge-based error.

TYPE OF EMERGENCY: Human Error

ACTION(s) TAKEN: Other

FILING CRITERIA(s): NERC EOP-004: Loss of More than 2,000 MW of Generation

2009 NERC Disturbance Reports

Start Date - Time: 3/4/2009 8:28:00 PM EST **Restoration - Final:** 3/5/2009 9:00:00 PM

Affected Utility: Allegheny Power System

Region: RFC **Balancing Authority ID:** PJM **Type:** UO

Cause: SPS-Suspected System Protection Misoperation **Category:** SPS Misoperation

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Mar. 3 at 20:28 a fault occurred on two of transmission lines due to possible flash-over at the crossing of the two lines. During the clearing of the fault, a power station associated with the two line tripped off line due to the protection schemes not operating as intended. The cause of the event is under investigation. The affected lines were lines were estimated to return to service on or before Mar 5 at 21:00.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 3/23/2009 3:01:00 PM MST **Restoration - Final:** #####
Affected Utility: Alberta Electric System Operator
Region: WECC **Balancing Authority ID:** AESO **Type:** UO
Cause: Weather-UNKNOWN **Category:** Weather
GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Mar. 23 at 15:01 the EHV transmission line tripped along with two 138 kV transmission lines. These trips resulted in islanding the utility and the loss of 25 MW of generation.
TYPE OF EMERGENCY: Major Transmission System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 3/26/2009 3:51:00 AM CST **Restoration - Final:** #####

Affected Utility: TVA

Region: SERC **Balancing Authority ID:** TVA **Type:** N/A

Cause: Equipment Failure-Transformer **Category:** Equipment Failure

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Mar. 26 at 03:51, the utility experienced the loss of two generating units due to the loss of a differential relay on CSST "D." (Common Station Service Transformer – Delta).
TYPE OF EMERGENCY: Major Generation Inadequacy
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): NERC IROL Report Filed

2009 NERC Disturbance Reports

Start Date - Time: 4/6/2009 1:00:00 AM CDT **Restoration - Final:** #####
Affected Utility: Consumers Energy Company
Region: RFC **Balancing Authority ID:** PJM **Type:** INT
Cause: Weather-Rain, Ice, Snow, High Winds **Category:** Weather
GenMW: **# of Customers:** 70793 **Customer Demand:** 75

Event Description:

DESCRIPTION: On Apr. 6 at 01:00 a winter storm with heavy wet snow accumulating on trees and distributions wires entered the utility's service area. By 10:00, in excess of 50,000 were affected; the cumulative number was 70,793 and the load lost was about 75 MW. Restoration efforts are underway. As of Mar 7 at 06:30, only 13,793 customers remain interrupted and most will be restored by the noon of Apr 8
TYPE OF EMERGENCY: Major Distribution System Interruption; Other
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE-EIA 417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 4/6/2009 6:28:00 PM EDT **Restoration - Final:** #####
Affected Utility: North Carolina Eastern Municipal Power Agency
Region: SERC **Balancing Authority ID:** CPLE,CPL **Type:** INT
Cause: Equipment Failure-Transmission **Category:** Equipment Failure
GenMW: **# of Customers:** 4300 **Customer Demand:** 27

Event Description:

DESCRIPTION: On Apr. 6 at 18:28 the 115 kV transmission line feeding (radial) the utility's system failed for unknown reasons. A total of 4,300 customers were affected and 27 MW of load lost. Transmission service was restored Apr 6 at 23:25.
TYPE OF EMERGENCY: Major Transmission System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): NERC EOP-004: Transmission Equipment Failure

2009 NERC Disturbance Reports

Start Date - Time: 4/10/2009 10:00:00 PM CDT **Restoration - Final:** #####

Affected Utility: Southern Company

Region: SERC **Balancing Authority ID:** SOCO **Type:** INT

Cause: Weather-Thunderstorm **Category:** Weather

GenMW: **# of Customers:** 56679 **Customer Demand:** 162

Event Description:

DESCRIPTION: On Apr. 10 at 22:00 a severe thunderstorm moved through the utility's service area causing distribution customer outages of 56,679 and 162 MW of load. By 02:30 on Apr 11 that reference reduced to less than 18, 000 and by 17:00 less than 1,500 customers.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 4/13/2009 1:20:00 AM CDT **Restoration - Final:** #####
Affected Utility: Southern Company
Region: SERC **Balancing Authority ID:** SOCO **Type:** INT
Cause: Weather-Spring Thunderstorm, High Winds **Category:** Weather
GenMW: **# of Customers:** 237000 **Customer Demand:** 526

Event Description:

DESCRIPTION: On Apr. 13 at 01:20, strong thunderstorms moved across the utility's territory. An estimated 237,000 customers were out-of-service at the peak of the storm. Storms are still active in area. Restoration expected to continue through Apr 15.
TYPE OF EMERGENCY: Major Distribution System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 4/19/2009 11:00:00 PM CDT **Restoration - Final:** #####
Affected Utility: NRG Texas Power LLC
Region: TRE **Balancing Authority ID:** ERCO **Type:** UO
Cause: Cyber-Software Virus **Category:** Cyber Failure
GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Apr. 19 at 23:00 the utility's corporate IT monitoring system identified a high number of failed attempts to log into corporate computers, which emanated from a plant computer at one of the utility's generating stations. This same event was again detected at 00:30 on Apr 20, emanating from a different plant computer at the same generating facility. The computers in question were isolated from the corporate network and virus scans on the computers were performed, which indicated that they had been infected with a virus. The affected computers do not have control authority for power control systems, and as such, could not be utilized to control the units or to trip them off-line, so it is felt that these incidents did not affect the electric power system. The cyber attack that did NOT affect the adequacy or vulnerability of the electric power system. The investigation is on-going.

TYPE OF EMERGENCY: Other - Malicious Software Virus

ACTION(s) TAKEN: Other

FILING CRITERIA(s): DOE OE-417 # NOT Specified

2009 NERC Disturbance Reports

Start Date - Time: 4/23/2009 4:25:00 PM PDT **Restoration - Final:** #####
Affected Utility: Puget Sound Energy
Region: WECC **Balancing Authority ID:** PSEI **Type:** UO
Cause: Equipment Failure-Substation **Category:** Equipment Failure
GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Apr. 23 at 16:25, one of the utility's 230/115 kV bank tripped off line. The cause of the trip is being investigated. At 17:35, a 115 kV line tripped out of service on a three phase fault. At 17:44 another 115 kV line tripped. The combination of these three unplanned outages and the three planned outages being conducted at the utility resulted in the loss of power to approximately 93,300 customers. Within one hour and 19 minutes, three unplanned outages occurred within close proximity of one another, resulting in the islanding of one section of the utility's service area. At 22:42, it was learned that an islanding situation had occurred within another small section, lasting from 17:35 and 17:44. Crews were immediately dispatched and at 18:17 the 230/115 kV transformer was restored to service restoring service to 59,000 customers. At 18:40, transmission lines into the remaining area were returned to service thereby restoring power to 34,300 customers. All customers were restored by Apr 24 at 00:29.
TYPE OF EMERGENCY: Major Transmission System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 4/23/2009 5:54:00 PM PDT **Restoration - Final:** #####
Affected Utility: Southern California Edison Company
Region: WECC **Balancing Authority ID:** CISO **Type:** INT
Cause: Human Error-Construction Mishap **Category:** Human Error
GenMW: **# of Customers:** 280000 **Customer Demand:** 512

Event Description:

DESCRIPTION: On Apr. 23 at 17:54 construction work at the utility interrupted the load at a 500/115 kV substation. One CB was opened inadvertently dropping all high voltage equipment and the radial load feed (512 MW to 280,000 customers) and tripped one generator (loaded at 250 MW at that time). By Apr 24 at 02:30, all interrupted transmission and generation was restored.

TYPE OF EMERGENCY: Major Transmission System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 5

2009 NERC Disturbance Reports

Start Date - Time: 4/24/2009 11:09:00 AM CDT **Restoration - Final:** #####

Affected Utility: Constellation Energy Control and Dispatch, BA Services Provider for the City of Ruston,
LA

Region: SPP **Balancing Authority ID:** CECD **Type:** INT

Cause: Human Error-Construction Mishap **Category:** Human Error

GenMW: **# of Customers:** 11000 **Customer Demand:** 32

Event Description:

DESCRIPTION: On Apr. 24 at 11:09, the BA received indication of a complete loss of load to a utility. Investigations identified a Contractor inadvertently opened a line breaker which is a radial line to the utility. At 11:21 all load was restore.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 3

2009 NERC Disturbance Reports

Start Date - Time: 4/25/2009 2:30:00 PM CDT **Restoration - Final:** #####
Affected Utility: Detroit Edison, Western Region of Service Territory
Region: RFC **Balancing Authority ID:** MISO **Type:** INT
Cause: Weather-Rain Storm/High Winds **Category:** Weather
GenMW: **# of Customers:** 125000 **Customer Demand:**

Event Description:

DESCRIPTION: On Apr. 25 at 14:00, high wind and rain affected the utility's service territory and distribution customer outages exceeded 50,000 by 1430. Outages continued to escalate until about 125,000 customers were affected. Restoration efforts dropped that number to below 50,000 at 1930 on Apr 26. All customers affected by the storm were restored by 0100 on Apr 29.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 4/27/2009 3:30:00 PM CDT **Restoration - Final:** #####
Affected Utility: CenterPoint Energy - Greater Houston / Galveston area
Region: TRE **Balancing Authority ID:** ERCO **Type:** INT
Cause: Weather-Rain Storm/High Winds **Category:** Weather
GenMW: **# of Customers:** 158000 **Customer Demand:** 176

Event Description:

DESCRIPTION: On Apr. 27 at 1530, weather moved through the utility's service area causing flooding and distribution system customer outages. The system was returned to normal by 2330 on Apr 28. The aggregate number meets the DOE reporting threshold; but at no time was it more than 50,000 customers out at one time during this event.
TYPE OF EMERGENCY: Major Distribution System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 5/8/2009 7:30:00 AM CDT **Restoration - Final:** 5/9/2009 9:00:00 AM

Affected Utility: Empire District Electric Company

Region: SPP **Balancing Authority ID:** EDE **Type:** INT

Cause: Weather-Derecho Windstorm **Category:** Weather

GenMW: **# of Customers:** 83000 **Customer Demand:** 266

Event Description:

DESCRIPTION: On May 8 at 07:30, a major weather event moved through the utility's service area (a Derecho storm). This violent, quick moving and long-life thunderstorm had winds of 50 to 100 MPH. Besides affecting and/or damaging the distribution system, the storm resulted in the tripping of the utility's coal-fired plant. A total of 83,000 customers were out of service at the height of the storm and all customers were expected to return to service by May 12.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 5/8/2009 11:30:00 PM CDT **Restoration - Final:** #####

Affected Utility: AMEREN

Region: SERC **Balancing Authority ID:** AMMO **Type:** INT

Cause: Weather-Derecho Windstorm **Category:** Weather

GenMW: **# of Customers:** 68800 **Customer Demand:** 300

Event Description:

DESCRIPTION: On May 8 at 23:30, a Derecho (a widespread and long lived windstorm that is associated with a band of rapidly moving showers or thunderstorms) consisting of sustained winds of 80 MPH, with gusts to 100 MPH, caused extensive damage to the distribution system in the utility's service area. Damages included the outage of 2 transmission circuits (138 kV to distribution low side) and 8 distribution substations.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 5/13/2009 1:02:00 PM EDT **Restoration - Final:** #####

Affected Utility: Hydro-Quebec TransEnergie

Region: NPCC **Balancing Authority ID:** HQT **Type:** UO

Cause: Fire-Vegetation/Trees **Category:** Fires

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On May 13 at 13:02 a 735 kV line tripped. The automatic reclosing operated normally but the line tripped again. After a few minutes, the Operator reenergized the line and it tripped again. A patrol of the line was request. The patrol found a fire on several trees close to the right of way. The fire was extinguished and the trees were cut. The line was back at 21:08. This event had no effect on the generation dispatch, transmission, or customers. The stability limit on the corridor was reduced. It is suspected that an electric arc was the cause of the line trip. The investigation is still ongoing.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Other

FILING CRITERIA(s): DOE OE-417 filed but no criteria noted.

2009 NERC Disturbance Reports

Start Date - Time: 5/29/2009 9:05:00 AM CDT **Restoration - Final:** #####

Affected Utility: Big Rivers Electric Coop.

Region: SERC **Balancing Authority ID:** BREC **Type:** INT

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

GenMW: **# of Customers:** 1 **Customer Demand:** 350

Event Description:

DESCRIPTION: On May 29 at 09:05, a 50 MVAR 161 kV capacitor failed and resulted in a partial loss of the 161 kV switchyard. This resulted in the loss of four generators (totaling 692 MW) connected to the 161 kV switchyard and one of two 161 kV switchyard buses and associated facilities. The bus was restored by 10:20 on May 29. No other transmission problems related to this disturbance were experienced. One 350 MW direct-serve industrial customer was outaged from 09:05 to 10:07.

TYPE OF EMERGENCY: Major Transmission System Interruption; Major Generation Inadequacy

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 5

2009 NERC Disturbance Reports

Start Date - Time: 6/4/2009 1:35:00 PM EDT **Restoration - Final:** 6/4/2009 2:35:00 PM

Affected Utility: Utilities Commission, City of New Smyrna Beach

Region: FRCC **Balancing Authority ID:** NSB **Type:** INT

Cause: Weather-Lightning **Category:** Weather

GenMW: **# of Customers:** 13639 **Customer Demand:** 32

Event Description:

DESCRIPTION: On June 4, the utility's 115 kV radial line tripped from a suspected lightning strike resulting in a complete outage of the utility's service area. No damage was sustained at any point. After the line was inspected, re-energized, and all load was restored.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004 No Criteria Stated

2009 NERC Disturbance Reports

Start Date - Time: 6/5/2009 1:18:00 PM PDT **Restoration - Final:** 6/5/2009 8:18:00 PM

Affected Utility: Pacific Gas and Electric Company

Region: WECC **Balancing Authority ID:** PACE,PAC **Type:** INT

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

GenMW: **# of Customers:** 70 **Customer Demand:** 1

Event Description:

DESCRIPTION: On June 5 at 11:18 the utility's 230 kV line relayed due to the failure of a switch interrupting the 70 kV line and substation. At 13:38 the substation was restored creating an island involving the 70 kV line and substation. At 2018 the island was synchronized to the grid. NOTE: The island was initiated manually to restore customers following the loss of a 230 kV line on June 5. Over the weekend the island was twice synchronized to the grid and twice manually islanded to allow repairs to be performed on the section of the 230 kV line

TYPE OF EMERGENCY: Major Transmission System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE-OE-417 # 4

2009 NERC Disturbance Reports

Start Date - Time: 6/9/2009 5:25:00 PM EDT **Restoration - Final:** #####
Affected Utility: Baltimore Gas & Electric Company
Region: RFC **Balancing Authority ID:** PJM **Type:** INT
Cause: Weather-Thunderstorms **Category:** Weather
GenMW: **# of Customers:** 86482 **Customer Demand:** 60

Event Description:

DESCRIPTION: On June 9 at 17:00 a line of thunderstorms passed through the utility's service area affecting the distribution system. At 14:30 On June 10 a total of 81,868 customers have been restored with a total of 4614 customers still out of service.

TYPE OF EMERGENCY: Other - Storm

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 6/10/2009 6:00:00 PM CDT **Restoration - Final:** #####
Affected Utility: Oncor Electric Delivery Company LLC - North and Central Texas
Region: TRE **Balancing Authority ID:** ERCO **Type:** INT
Cause: Weather-Thunderstorms **Category:** Weather
GenMW: **# of Customers:** 800000 **Customer Demand:**

Event Description:

DESCRIPTION: On June 10 at 18:00, intense storms, with over 60 mph winds, hail, intense lightning, and reports of rotation, began in the western portion of the utility's service area and moved eastward. Preliminary estimate of distribution customer interruptions at the height of the initial storm is approximately 260,000. Periodically, storms continued to build up west and northwest and moved through the utility's service area east and southeast through June 11. These storms included hail, strong winds, intense lightning. With these storms continuing to roll through the same areas, damage assessment and restoration efforts were severely hampered. It is now estimated that over 500,000 customers have been affected by some type of outage from this storm event. On the afternoon of June 11, the storms subsided and restoration efforts made significant headway. At least three tornadoes occurred in the service area on June 11. As of mid-day June 12, less than 90,000 customers were out of service. Overall, over 800,000 customers were affected were affected during this event.
TYPE OF EMERGENCY: Major Distribution System Interruption; Other
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 6/12/2009 4:37:00 PM CDT **Restoration - Final:** #####
Affected Utility: TVA for Memphis Light Gas & Water, TN
Region: SERC **Balancing Authority ID:** TVA **Type:** INT
Cause: Weather-Lightning, Thunderstorms **Category:** Weather
GenMW: 1117 **# of Customers:** 136000 **Customer Demand:** 860

Event Description:

DESCRIPTION: On June 12 at 16:37, sixty-seven 23 kV and 12 kV distribution lines tripped following a storm, severe weather with 80 mph winds, that moved through the utility's service area. The result was the loss of 1,117 MW of demand and approximately 136,000 customers. By June 12 at 18:53 39,000 customers remain without electrical service and work continues to restore those customers.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 3

2009 NERC Disturbance Reports

Start Date - Time: 6/12/2009 5:45:00 PM CDT **Restoration - Final:** #####

Affected Utility: Entergy Corporation – Arkansas/North Mississippi

Region: SERC **Balancing Authority ID:** EES **Type:** INT

Cause: Weather-Thunderstorms **Category:** Weather

GenMW: **# of Customers:** 79784 **Customer Demand:**

Event Description:

DESCRIPTION: On June 12 at 17:45 severe thunderstorms affected the majority of the utility's service area and at that time 50,000 customers had been without service for over an hour. The National Weather Service forecasted the derecho moving through the area producing widespread wind damage with 70-plus mph winds. At the storms peak, there were 81,645 customers affected. The utility pre-positioned restoration crews and management prior to the on set of the event and will continue restoration efforts in those areas where it is safe to work. As 14:30 on June 15, only 6,000 customers remain out of service.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 6/12/2009 10:00:00 PM CDT **Restoration - Final:** #####

Affected Utility: Southern Company

Region: SERC **Balancing Authority ID:** SOCO **Type:** INT

Cause: Weather-Lightning, Thunderstorms **Category:** Weather

GenMW: **# of Customers:** 102000 **Customer Demand:** 290

Event Description:

DESCRIPTION: On June 12 at 22:00 inclement weather rolled through the utility's service area affecting the distribution system resulting in the loss of service to 102,000 customers. By June 13 at 18:00 less than 11,000 customers were out of service.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 6/13/2009 7:04:00 PM MDT **Restoration - Final:** #####
Affected Utility: Alberta Electric System Operator
Region: WECC **Balancing Authority ID:** AESO **Type:** UO
Cause: Equipment Failure-Unknown **Category:** Equipment Failure
GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On June 1 at 19:04 the utility's generating unit tripped due to an unknown cause, no equipment damage reported, dropping 450 MW. At that time the utility was importing 155 MW and the interconnection to neighboring utilities stayed intact. The frequency dropped to 59.943 Hz but no transmission lines tripped. ACE went to 530 but the disturbance was recovered in 15 minutes using internal reserves and 71 MW of external reserves. All reserves were recovered within 45 minutes.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 6/14/2009 2:02:00 AM EDT **Restoration - Final:** #####

Affected Utility: NYISO

Region: NPCC **Balancing Authority ID:** NYIS **Type:** UO

Cause: Equipment Failure-Unknown **Category:** Equipment Failure

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On June 14 at 02:02, the Reliability Coordinator reported a disturbance that is beyond recognized DOE or NERC reporting criteria. There was no loss of load, system separation, SOL or IROL exceeded due to this event. On June 14 at 02:02 at a substation a 345 kV bus tripped causing other buses to trip resulting in the loss of 6 345 kV lines. The transmission system was not affected and was returned to full operations at 05:03.
TYPE OF EMERGENCY: Major Transmission System Interruption
ACTION(s) TAKEN: Repaired/Restored
FILING CRITERIA(s): DOE OE-417 # NONE SPECIFIED

2009 NERC Disturbance Reports

Start Date - Time: 6/16/2009 11:00:00 PM PDT **Restoration - Final:** #####

Affected Utility: California Department of Water Resources

Region: WECC **Balancing Authority ID:** CISO **Type:** UO

Cause: Equipment Failure-Unknown **Category:** Equipment Failure

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On June 16 at 23:00 the utility had to modify its pumping schedules (300 MW for 3 hours) due to forced outage of downstream plants, intake screen cleaning, resulting in the modification scheduled (June 16 and 17) to water conveyance and storage issues.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Other

FILING CRITERIA(s): DOE OE-417 # 5

2009 NERC Disturbance Reports

Start Date - Time: 6/17/2009 9:50:00 AM CDT **Restoration - Final:** #####
Affected Utility: Kansas City Power & Light
Region: SPP **Balancing Authority ID:** KCPL **Type:** INT
Cause: Policy Violation-Vegetation Interference **Category:** Policy Violation
GenMW: **# of Customers:** 48858 **Customer Demand:** 258

Event Description:

DESCRIPTION: On June 17 at 09:50, the utility experienced a disturbance resulting in the dropping of 48,858 Customers / 258 MW in an area due to a tree fault on a 161 kV line. There was no island situation during this event, no SPS was involved, and there was no equipment damage. As a result of the disturbance, two additional 161 kV line were out and another was submitted to the regional reliability coordinator for approval and approved for removal from service.
TYPE OF EMERGENCY: Other
ACTION(s) TAKEN: Other
FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 6/19/2009 12:01:00 AM CDT **Restoration - Final:** #####
Affected Utility: Consumers Energy Company
Region: RFC **Balancing Authority ID:** PJM **Type:** INT
Cause: Weather-Lightning, Thunderstorms **Category:** Weather
GenMW: **# of Customers:** 99000 **Customer Demand:** 75

Event Description:

DESCRIPTION: On June 19 at 00:01 a thunder and lightning storm impacting the utility's distribution service area. Damage included broken poles and burned out transformers due to lightning and wind. The affected number of customers exceeded 50,000 customers at 07:00 on June 19. Repairs were below 50,000 customers at 11:00 and below 12,000 at 21:00. On June 20, additional storms entered the service area and at 07:00 about 33,000 customers were out of service. Restoration will be completed on June 21.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 6/19/2009 1:00:00 AM CDT **Restoration - Final:** #####
Affected Utility: Exelon Corp-Commonwealth Edison
Region: RFC **Balancing Authority ID:** PJM **Type:** INT
Cause: Weather-Lightning, Thunderstorms **Category:** Weather
GenMW: **# of Customers:** 245000 **Customer Demand:**

Event Description:

DESCRIPTION: On June 19 at 01:00, storm of severe weather activity entered the utility's service territory; 245,000 customers experienced power outages. The thunderstorm activity had gusts of 62 mph resulting in numerous cases of trees and wire being down and distribution poles broken causing vegetation related distribution outages. The storm activity was declared officially over at 23:59 on June 19.
TYPE OF EMERGENCY: Major Distribution System Interruption; Other
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 6/24/2009 1:30:00 PM CDT **Restoration - Final:** #####
Affected Utility: Louisiana Generating LLC, Southwest Louisiana Electric Membership Corp
Region: SPP **Balancing Authority ID:** LAGN **Type:** PA
Cause: Public Appeal-Press Release **Category:** Public Appeal
GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On June 14 at 10:30 the RC informed the Transmission Operator of transmission problems in the area that could possibly require load shedding. The TO informed the local utility of the RC's notification and advised them to prepare for possible load shedding. The local utility issued a public appeal press release requesting customers to reduce their power usage. In its appeal, the local utility requested that its customers continue to minimize their electric usage until 21:00. Continuing transmission problems caused the appeal to again be issued on June 25 and 26.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Made Public Appeals

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 6/25/2009 12:49:00 AM CDT **Restoration - Final:** #####

Affected Utility: First Energy Corp

Region: RFC **Balancing Authority ID:** PJM **Type:** UO

Cause: Equipment Failure-CCVT **Category:** Equipment Failure

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On June 25 at 00:49 at the utility's generating station, a voltage monitoring transformer on the B-phase of the J-bus of the switchyard failed. Corresponding bus protection automatically isolated the J-bus. In turn, this action de-energized the Number One Startup Transformer, rendering one of two startup transformers unavailable. Repairs began immediately and the voltage monitoring transformer returned to service on June 26 at 22:05. The generating unit remained on-line and synchronized to the grid throughout these events via the K-bus.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 6/25/2009 3:16:00 PM CDT **Restoration - Final:** #####

Affected Utility: ERCOT ISO

Region: TRE **Balancing Authority ID:** ERCO **Type:** PA

Cause: Public Appeal-Heat Wave **Category:** Public Appeal

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On June 25 at 15:16, the RC was expecting a high electricity demand that was expected to break the all-time peak due to a heat advisory in effect for the area. The RC issued a Power Watch-Conservation Needed notice as a courtesy. The power system maintained by the RC was never in an emergency condition.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Made Public Appeals

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 6/25/2009 3:30:00 PM CDT **Restoration - Final:** #####

Affected Utility: Detroit Edison

Region: RFC **Balancing Authority ID:** MISO **Type:** INT

Cause: Weather-Lightning, Thunderstorms **Category:** Weather

GenMW: **# of Customers:** 118000 **Customer Demand:**

Event Description:

DESCRIPTION: On June 25 at 15:30 a storm with high winds and rain resulting in over 50,000 customers out of service at 15:30. Only the distribution service was affected and overall about 118,000 customers were without service as some point. As of June 26 at 19:00, customer outage count fell below 50,000; however the storm reenergized and continued through June 28 20:00.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 6/26/2009 1:00:00 AM CDT **Restoration - Final:** #####

Affected Utility: Duke Energy-Midwest

Region: RFC **Balancing Authority ID:** CIN **Type:** INT

Cause: Weather-Lightning, Thunderstorms **Category:** Weather

GenMW: **# of Customers:** 85000 **Customer Demand:**

Event Description:

DESCRIPTION: On June 26 at 01:00, the utility's service area was affected by strong thunderstorms with heavy rains, high winds and lightning. These storms caused electric service outages to approximately 85,000 customers.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 6/26/2009 5:00:00 PM EDT **Restoration - Final:** #####

Affected Utility: Northeast Utilities

Region: NPCC **Balancing Authority ID:** ISNE **Type:** INT

Cause: Weather-Lightning, Thunderstorms **Category:** Weather

GenMW: **# of Customers:** 50752 **Customer Demand:**

Event Description:

DESCRIPTION: On June 26 at 17:00 severe weather entered the utility's service area causing service interruptions to 50,752 customers. The utility activated its EOC to facilitate the repairs.
TYPE OF EMERGENCY: Major Distribution System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 7/2/2009 10:44:00 PM EDT **Restoration - Final:** 7/3/2009 1:25:00 AM

Affected Utility: ISO New England for Central Maine

Region: NPCC **Balancing Authority ID:** ISNE **Type:** UO

Cause: Weather-Lightning **Category:** Weather

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On July 2 at 22:44, a 345 kV line and associated SPS tripped. An electrical storm with lightning was in the area at time of trip. The line was synchronized on July 3 at 01:12 and all other switching was completed at 01:25.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 4

2009 NERC Disturbance Reports

Start Date - Time: 7/4/2009 12:52:00 PM MDT **Restoration - Final:** 7/4/2009 1:07:00 PM

Affected Utility: Alberta Electric System Operator

Region: WECC **Balancing Authority ID:** AESO **Type:** UO

Cause: Equipment Failure-Unknown **Category:** Equipment Failure

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On July 4 at 12:52, the utility's Generating Station "A" tripped due to an unknown cause(s) dropping 364 MW and the frequency dropped to 59.926 Hz. The Interconnection was not affected. The electrical system recovered from the disturbance in 15 minutes using internal and external reserves. All reserves were recovered within 50 minutes.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Other

FILING CRITERIA(s): NERC EOP-004 - Freq. Excursion Greater than -.05 Hz

2009 NERC Disturbance Reports

Start Date - Time: 7/4/2009 3:30:00 PM MDT **Restoration - Final:** 7/4/2009 3:45:00 PM

Affected Utility: Alberta Electric System Operator

Region: WECC **Balancing Authority ID:** AESO **Type:** UO

Cause: Equipment Failure-Unknown **Category:** Equipment Failure

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On July 4 at 15:30, the utility's Generating Station "B" tripped due to an unknown cause(s) dropping 381 MW and the frequency dropped to 59.943 Hz. The Interconnection was not affected. The electrical system recovered from the disturbance in 15 minutes using internal and external reserves. All reserves were recovered within 52 minutes.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Other

FILING CRITERIA(s): NERC EOP-004 - Freq. Excursion Greater than -.05 Hz

2009 NERC Disturbance Reports

Start Date - Time: 7/7/2009 3:30:00 PM CDT **Restoration - Final:** 7/7/2009 7:00:00 PM

Affected Utility: ERCOT ISO – San Antonio, TX

Region: TRE **Balancing Authority ID:** ERCO **Type:** UO

Cause: Public Appeal-Generation Inadequacy **Category:** Public Appeal

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On July 7 at 15:30, the RC issued a public appeal, through 19:00, for the local utility due to local generation problems - several units were experiencing mechanical problems. The request was issued to reduce demand in the area to minimize the amount of load that would be required to be tripped in the event of a loss of a generating station and a transmission contingency (an N-2 event).

TYPE OF EMERGENCY: Major Generation Inadequacy; Other

ACTION(s) TAKEN: Made Public Appeals

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 7/8/2009 1:30:00 PM CDT **Restoration - Final:** 7/8/2009 7:00:00 PM

Affected Utility: ERCOT ISO

Region: TRE **Balancing Authority ID:** ERCO **Type:** UO

Cause: Public Appeal-Heat Wave **Category:** Public Appeal

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On July 8 at 13:30, the RC issued a public appeal for the Region through 19:00. The RC is expecting high electricity demand and could break the all-time peak due to a heat advisory in effect for much of the Region.

TYPE OF EMERGENCY: Major Generation Inadequacy; Other

ACTION(s) TAKEN: Made Public Appeals

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 7/13/2009 12:29:00 PM MDT **Restoration - Final:** #####
Affected Utility: Alberta Electric System Operator
Region: WECC **Balancing Authority ID:** AESO **Type:** UO
Cause: Weather-Lightning Strike/Equipment Failure **Category:** Weather
GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On July 13 at 12:29, the utility's system separated and the suspected cause was a lighting strike. The islanding resulted in 10 MW of contracted load being shed plus approx. 70 MW of load.
TYPE OF EMERGENCY: Major Transmission System Interruption
ACTION(s) TAKEN: Other
FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 7/14/2009 1:00:00 PM CDT **Restoration - Final:** #####

Affected Utility: AEP (CSWS) in the SPP Reliability Region

Region: SPP **Balancing Authority ID:** AEPT **Type:** PA

Cause: Public Appeal-Load Reduction **Category:** Public Appeal

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On July 14 at 13:00, the utility issued a Public Appeal for the affected area between the hours of 13:00 and 18:00. Prior transferring of distribution load has already been attempted but is not sustainable with the current and projected conditions. The operating conditions and basis for this public appeal are not energy or capacity deficiency related. Therefore, the utility is NOT implementing its Capacity Deficiency Program or declaring an EEA at this time. Currently, this is only a localized issue. The area has been experiencing higher loading conditions with the potential of actual overloading due to a forced generation outage and a projected temperature index of 105-108 degrees.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Made Public Appeals

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 7/15/2009 1:00:00 PM CDT **Restoration - Final:** #####

Affected Utility: AEP (CSWS) in the SPP Reliability Region

Region: SPP **Balancing Authority ID:** AEPT **Type:** PA

Cause: Public Appeal-Load Reduction **Category:** Public Appeal

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On July 15 at 13:00, the utility issued a Public Appeal for the affected area between the hours of 13:00 and 18:00. Prior transferring of distribution load has already been attempted but is not sustainable with the current and projected conditions. The operating conditions and basis for this public appeal are not energy or capacity deficiency related. Therefore, the utility is NOT implementing its Capacity Deficiency Program or declaring an EEA at this time. Currently, this is only a localized issue. The area has been experiencing higher loading conditions with the potential of actual overloading due to a forced generation outage and a projected temperature index of 105-108 degrees.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Made Public Appeals

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 7/16/2009 1:00:00 PM CDT **Restoration - Final:** #####

Affected Utility: AEP (CSWS) in the SPP Reliability Region

Region: SPP **Balancing Authority ID:** AEPT **Type:** PA

Cause: Public Appeal-Load Reduction **Category:** Public Appeal

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On July 16 at 13:00, the utility issued a Public Appeal for the affected area between the hours of 13:00 and 18:00. Prior transferring of distribution load has already been attempted but is not sustainable with the current and projected conditions. The operating conditions and basis for this public appeal are not energy or capacity deficiency related. Therefore, the utility is NOT implementing its Capacity Deficiency Program or declaring an EEA at this time. Currently, this is only a localized issue. The area has been experiencing higher loading conditions with the potential of actual overloading due to a forced generation outage and a projected temperature index of 105-108 degrees.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Made Public Appeals

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 7/17/2009 5:32:00 PM EDT **Restoration - Final:** #####
Affected Utility: North Carolina Eastern Municipal Power Agency
Region: SERC **Balancing Authority ID:** CPLE,CPL **Type:** INT
Cause: Weather-Thunderstorm, Lightning **Category:** Weather
GenMW: **# of Customers:** 11878 **Customer Demand:** 56

Event Description:

DESCRIPTION: On July 17 at 17:32, a circuit breaker at a radial delivery point on a 230 kV opened, causing the loss of service the affected utility. Thunderstorms with associated lightning were in the area. Service was restored in 20 minutes (17:52).

TYPE OF EMERGENCY: Major Transmission System Interruption

ACTION(s) TAKEN: Repaired/Restored

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 7/18/2009 7:00:00 PM CDT **Restoration - Final:** #####

Affected Utility: CenterPoint Energy

Region: TRE **Balancing Authority ID:** ERCO **Type:** INT

Cause: Weather-Thunderstorms, High Winds **Category:** Weather

GenMW: **# of Customers:** 73000 **Customer Demand:**

Event Description:

DESCRIPTION: On July 18 at 19:00, bands of thunderstorms and high winds passed through the utility's service territory. By 20:00, 73,000 customers were without power. Repairs were initiated immediately and by 21:30 less than 46,000 customers were without power.

TYPE OF EMERGENCY: Major Distribution System Interruption; Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 7/18/2009 10:00:00 PM MDT **Restoration - Final:** #####
Affected Utility: Alberta Electric System Operator
Region: WECC **Balancing Authority ID:** AESO **Type:** UO
Cause: Weather-Thunderstorms, Tornado **Category:** Weather
GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On July 18 at 22:00, the utility area experienced a severe thunderstorm, with tornadoes being reported, resulting in the loss of several 25 and 138 kV transmission lines and about 316 MW of load. Note: load loss is based on the ACE deviation, actual numbers not available at this time. One 138 kV line remains out of service due to damaged structures.
TYPE OF EMERGENCY: Major Transmission System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 7/20/2009 3:31:00 PM EDT **Restoration - Final:** #####
Affected Utility: North Carolina Eastern Municipal Power Agency
Region: SERC **Balancing Authority ID:** CPLE,CPL **Type:** INT
Cause: Equipment Failure-Unknown **Category:** Equipment Failure
GenMW: **# of Customers:** 6720 **Customer Demand:** 37

Event Description:

DESCRIPTION: On July 20 at 15:31, a 230 kV radial transmission line feed from a neighboring utility, causing loss of service to Delivery Point #2 and #3. The cause of the outage is under investigation. All transmission service was restored at 15:52.
TYPE OF EMERGENCY: Other
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 7/20/2009 9:50:00 PM MDT **Restoration - Final:** #####

Affected Utility: Public Service of Colorado

Region: WECC **Balancing Authority ID:** PSCO **Type:** INT

Cause: Weather-Thunderstorms, Lightning, High Winds, Hail **Category:** Weather

GenMW: **# of Customers:** 86058 **Customer Demand:** 150

Event Description:

DESCRIPTION: On July 20 at 21:50, the utility's service area the distribution system experienced a significant number of outages related to a fast moving thunderstorm. The storm progressed from the west and tracked in a southeastern direction. The storm was accompanied by high winds, lightning, and hail. The utility's 13.2 kV distribution system sustained significant damage. About 86,058 customers experienced sustained outages. Crews were deployed to respond to outages affecting 52,981 customers. By 22:30 on July 21, 83% of these customers had been restored. There was no electrical separation or islanding during this event.

TYPE OF EMERGENCY: Major Distribution System Interruption; Other

ACTION(s) TAKEN: Implemented a Warning, Alert, or Contingency Plan; Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 7/21/2009 5:34:00 AM PDT **Restoration - Final:** #####
Affected Utility: Crockett Co-Generation – San Francisco Bay Area, CA
Region: WECC **Balancing Authority ID:** CISO **Type:** INT
Cause: Equipment Failure-High Bearing Vibration **Category:** Equipment Failure
GenMW: **# of Customers:** 1 **Customer Demand:** 136

Event Description:

DESCRIPTION: On July 21 at 05:34, during the normal start-up of a generating unit at the utility while the unit was ramping, the number 4 bearing on the steam turbine tripped on high vibration. It appears that the vibration transducer failed indicating a high vibration, which caused the trip. The operator is in the process of changing out the failed vibration transducer and will restart the generating unit.
TYPE OF EMERGENCY: Other
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 5

2009 NERC Disturbance Reports

Start Date - Time: 7/26/2009 9:15:00 PM EDT **Restoration - Final:** #####
Affected Utility: North Carolina Eastern Municipal Power Agency
Region: SERC **Balancing Authority ID:** CPLE,CPL **Type:** INT
Cause: Equipment Failure-Unknown **Category:** Equipment Failure
GenMW: **# of Customers:** 3878 **Customer Demand:** 12

Event Description:

DESCRIPTION: On July 26 at 21:15, a 115 kV radial feed to the affected utility failed for unknown reason affecting 3,878 customers and 11.5 MW of load. The cause of the outage is under investigation. All transmission Service was restored at 22:58. The utility operating the radial feed indicated severe weather with a possible tornado damaging 7 structures on the affected line.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 7/28/2009 8:18:00 PM PDT **Restoration - Final:** #####

Affected Utility: PacificCorp

Region: WECC **Balancing Authority ID:** PACE,PAC **Type:** INT

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

GenMW: **# of Customers:** **Customer Demand:** 316

Event Description:

DESCRIPTION: On July 28 at 20:18, at the utility's substation a 138 kV capacitor bank failed causing a low voltage spike which initiated loss of approximately 316 MW of industrial load. The incident is under investigation and exact duration of loss of load is to be determined.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 3

2009 NERC Disturbance Reports

Start Date - Time: 7/30/2009 1:48:00 PM CDT **Restoration - Final:** #####
Affected Utility: Manitoba Hydro Electricity Board
Region: MRO **Balancing Authority ID:** MHEB **Type:** INT
Cause: Animal Contact **Category:** Animal Contact
GenMW: **# of Customers:** 38073 **Customer Demand:**

Event Description:

DESCRIPTION: On July 31 at 01:48 a fault occurred at the utility's generating station in a 115 kV Bus due to wildlife contact. Protection relays operated to isolate the station from the bulk power system. A 500, a 230, and several 115 kV lines tripped resulting in the operation of the HVDC reduction (SPS) Under-voltage Protection System. The transmission system was returned to service that same day at 04:01 and all generation was restored by 04:30. The frequency fluctuated from 59.996 to 59.932 Hz as a result of the incident.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 8/4/2009 1:45:00 PM CDT **Restoration - Final:** 8/4/2009 9:00:00 PM

Affected Utility: Duke Energy Midwest

Region: RFC **Balancing Authority ID:** CIN **Type:** INT

Cause: Weather-Thunderstorms-Lightning-High Winds **Category:** Weather

GenMW: **# of Customers:** 63700 **Customer Demand:** 50

Event Description:

DESCRIPTION: On Aug. 4 at 13:45 the utility's service territory experienced strong thunderstorms, lightning and high winds causing 63,700 customer outages. Restoration efforts were immediately initiated. All customers were restored by Aug 6.
TYPE OF EMERGENCY: Major Distribution System Interruption; Other
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 8/5/2009 3:00:00 PM CDT **Restoration - Final:** 8/5/2009 7:00:00 PM

Affected Utility: ERCOT ISO

Region: TRE **Balancing Authority ID:** ERCO **Type:** PA

Cause: Public Appeal-High Temps-Generation Limitations **Category:** Public Appeal

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Aug. 5 at 13:00 the regional coordinator issued a public appeal "Power Watch – Conservation Needed" notice, effective 15:00 to 19:00, as a courtesy. The area is not in an emergency condition. The area is expecting high electricity demand due to several heat advisories for the region. The system is not expecting to break the all-time peak, but there are restricted generation reserves available due to several unplanned outages.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Made Public Appeals

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 8/6/2009 2:46:00 PM CDT **Restoration - Final:** 8/6/2009 9:49:00 PM

Affected Utility: CenterPoint Energy / ExxonMobil Refining & Supply Company

Region: TRE **Balancing Authority ID:** ERCO **Type:** UO

Cause: Voltage Drop-PH-PH Fault **Category:** Voltage Collapse

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Aug. 6 at 14:46, at the utility's generating station a 138 kV Line A developed a ph-ph fault; dropping the substation voltage drop to 50%. This first fault cleared in 5.5 cycles. At 0.5 seconds after the first fault, a 138 kV Line B developed a ph-ph fault; dropping the substation voltage to 58%. The second fault cleared in 6.5 cycles. At 1.7 seconds after the second fault, 138 kV Line B auto re-closed; then 0.03 second later developed a 3-ph fault; dropping the substation voltage drop to 17%. The third fault cleared in 35 cycles. About 140 MW of generation was tripped during the faults; all generation was restored by 21:49 on Aug 6.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 8/7/2009 11:00:00 PM CDT **Restoration - Final:** #####

Affected Utility: Detroit Edison

Region: RFC **Balancing Authority ID:** PJM **Type:** INT

Cause: Weather-Summer Storm, High Winds, Rain **Category:** Weather

GenMW: **# of Customers:** 137000 **Customer Demand:**

Event Description:

DESCRIPTION: On Aug. 7 at 23:00, the utility's service area experienced a summer storm with high winds and rain affecting the distribution system. By 23:30, over 50,000 customers were out of service and at the storms peak a total of 137,000 customers. Repairs and restoration were immediately initiated.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 8/9/2009 7:31:00 PM CDT **Restoration - Final:** #####
Affected Utility: Consumers Energy Company
Region: RFC **Balancing Authority ID:** PJM **Type:** INT
Cause: Weather-High Winds **Category:** Weather
GenMW: **# of Customers:** 58156 **Customer Demand:**

Event Description:

DESCRIPTION: On Aug. 9 at 19:31 severe weather with 70-75 mph wind patterns caused numerous interruptions to distribution facilities throughout the utility's service territory. Numerous trees were blown over and uprooted and many homes and businesses lost power. Restoration continued through the morning of Aug. 10.
TYPE OF EMERGENCY: Major Distribution System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 8/12/2009 6:25:00 PM CDT **Restoration - Final:** #####

Affected Utility: CenterPoint Energy

Region: TRE **Balancing Authority ID:** ERCO **Type:** INT

Cause: Weather-Thunderstorms **Category:** Weather

GenMW: **# of Customers:** 70872 **Customer Demand:**

Event Description:

DESCRIPTION: On Aug. 12 at 18:25, a strong band of thunderstorms moved through the utility's service area affecting the distribution system. The thunderstorm caused power loss to 70,872 customers for more than an hour. Crews are repairing/restoring power and it is expected that all customers will be restored by 03:00 on Aug 13.

TYPE OF EMERGENCY: Major Distribution System Interruption; Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 8/14/2009 9:06:00 PM EDT **Restoration - Final:** #####
Affected Utility: Indianapolis Power & Light Co.
Region: RFC **Balancing Authority ID:** IPL **Type:** INT
Cause: Weather-Thunderstorm, Lightning **Category:** Weather
GenMW: 451 **# of Customers:** 8391 **Customer Demand:** 45.7

Event Description:

DESCRIPTION: On Aug. 14, the utility reported that during a severe thunderstorm, lightning struck four spans west of a 345 kV line. The line did not relay at that time. On Aug. 14 at 21:06, the static wire failed mechanically and fell across the 345 kV insulator strings resulting in a high impedance fault. Eventually, the static wire failed and came down on the 138 kV line taking that line out and a distribution transformer – ultimately affecting 8,391 customers and 45.7 MW of load. When the 138 kV bus tie breaker opened on the 132-60 line dropped the distribution transformer and associated equipment. This also resulted in the tripping of a 451 MW generating unit. The event lasted 01:56. The 345 kV line repairs were completed on Aug. 18 at 19:57.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): RFC Regional Report Filed

2009 NERC Disturbance Reports

Start Date - Time: 8/21/2009 7:00:00 PM CDT **Restoration - Final:** #####
Affected Utility: CenterPoint Energy
Region: TRE **Balancing Authority ID:** ERCO **Type:** INT
Cause: Weather-Thunderstorms-High Winds **Category:** Weather
GenMW: **# of Customers:** 80000 **Customer Demand:** 544

Event Description:

DESCRIPTION: On Aug. 21 at 19:00, a band of thunderstorms and high winds passed through the utility's service territory. By about 19:00, 80,000 customers were without power. By 08:00 on Aug 22, all but 2,000 customers were restored.
TYPE OF EMERGENCY: Major Distribution System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 8/29/2009 11:00:00 AM CDT **Restoration - Final:** #####
Affected Utility: WAPA-Upper Great Plains Region
Region: MRO **Balancing Authority ID:** WAUE **Type:** INT
Cause: Equipment Failure-Breaker Operation **Category:** Equipment Failure
GenMW: 373 **# of Customers:** 18 **Customer Demand:** 69

Event Description:

DESCRIPTION: On Aug. 29 at 11:00, the utility's 230 kV line tripped while transferring 120 MW of load when the A-phase line Wave Trap failed. When the affected line was returned to service, multiple lines tripped, including at least 3 230 kV and 10 115 kV lines failing. A 34 MW island was created during this operation due to on site generation. The island was reconnected to the interconnection at 11:53 am. The failed Wave Trap was removed from the line and the line was returned to normal service at 20:27. The total number of lines, generators, substations and customers affected by the disturbance remains to be determined. The preliminary investigation indicates the affected substations breaker may have been slow in tripping resulting in numerous backup relays operating. However, the breaker went through a reclose cycle with reclosing disabled and the Breaker Failure test for this breaker did not operate. This relay operation will be investigated thoroughly and the breaker will be inspected during normal working hours the week of Aug 31. Restoration efforts are continuing at this time but some lines remain out of service.

TYPE OF EMERGENCY: Major Transmission System Interruption

ACTION(s) TAKEN: Other

FILING CRITERIA(s): DOE OE-417 # 4

2009 NERC Disturbance Reports

Start Date - Time: 8/31/2009 10:21:00 AM PDT **Restoration - Final:** #####

Affected Utility: Los Angeles Department of Water and Power

Region: WECC **Balancing Authority ID:** CISO **Type:** PA

Cause: Public Appeal-Wildfires **Category:** Public Appeal

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Aug. 31 at 10:21, the utility issued an appeal for conservation due to the wildfire which is impacting the areas import transmission. One 500 kV line is currently out and the fire is moving towards the two other 500 kV lines. The utility has maximized internal generation and imports on non-affected paths. Due to a reduced threat to the transmission system, the public appeal was allowed to expire effective midnight on Aug 31.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Made Public Appeals

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 9/2/2009 11:02:00 PM MDT **Restoration - Final:** 9/3/2009 2:00:00 AM

Affected Utility: Alberta Electric System Operations

Region: WECC **Balancing Authority ID:** AESO **Type:** UO

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

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Sept. 2 at 23:02, the utility lost two 138 kV lines due to a suspected overload. The separation remedial action scheme operated as designed to isolate the utility from the interconnection. The frequency of the islanded area dropped to 59.729 Hz. Subsequently, the neighboring utility stated that a 240/138 kV interconnection transformer tripped (locked out) and needed inspection prior to re-energization. A decision was made to remain separated until the transformer determination could be made. The two affected lines were energized at 01:57 and 02:00, respectively.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 9/4/2009 4:14:00 PM MDT **Restoration - Final:** 9/4/2009 5:29:00 PM

Affected Utility: Alberta Electric System Operations

Region: WECC **Balancing Authority ID:** AESO **Type:** UO

Cause: Equipment Failure-Generation-Tube Leak **Category:** Equipment Failure

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Sept. 4 at 16:14, the utility lost a generating unit resulting in a power swing in two 138 kV lines. The separation remedial action scheme operated as designed to isolate the utility from the interconnection. The frequency of the islanded area dropped to 59.516 Hz. The RC was notified. The two affected lines were energized at 17:29 and 17:39, respectively.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 9/7/2009 8:58:00 AM MDT **Restoration - Final:** 9/7/2009 9:12:00 PM

Affected Utility: Alberta Electric System Operations

Region: WECC **Balancing Authority ID:** AESO **Type:** UO

Cause: Equipment Failure-Generation **Category:** Equipment Failure

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Sept. 7 at 08:58, the utility lost a 153 MW generating unit resulting in a power swing in two 138 kV lines. The separation remedial action scheme operated as designed to isolate the utility from the interconnection. The frequency of the islanded area dropped to 59.588 Hz. The RC was notified. The two affected lines were energized at 09:12 and 09:15, respectively.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 9/9/2009 5:59:00 PM MDT **Restoration - Final:** 9/9/2009 6:34:00 PM

Affected Utility: Alberta Electric System Operations

Region: WECC **Balancing Authority ID:** AESO **Type:** UO

Cause: Equipment Failure-Generation-Tube Leak **Category:** Equipment Failure

GenMW: 480 **# of Customers:** **Customer Demand:** 16

Event Description:

DESCRIPTION: On Sept. 9 at 17:54, the utility lost a generating unit resulting in a power swing in two 138 kV lines. The separation remedial action scheme operated as designed to isolate the utility from the interconnection. The frequency of the islanded area dropped to 59.511 Hz. The RC was notified. The two affected lines were energized at 18:34.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 9/19/2009 3:55:00 PM PDT **Restoration - Final:** #####
Affected Utility: Comisión Federal de Electricidad
Region: WECC **Balancing Authority ID:** CFE **Type:** UO
Cause: Earthquake-Firm Load Lost **Category:** Earthquake
GenMW: 549 **# of Customers:** **Customer Demand:** 110

Event Description:

DESCRIPTION: On Sept. 19 at 15:55, a 5.1 magnitude (Richter Scale) earthquake occurred in the utility's service territory tripping all 549 MW of on line generation, as well as 14 MW of load at a substation. The sudden loss of generation resulted in a system frequency excursion which was returned to normal in nine minutes. All available spinning reserves were deployed, all non-spinning reserves and off-line cold reserve units were restarted and 210 MW of emergency assistance from the neighboring utility was requested. A total of 110 MW of firm load was shed. Restoration immediately commenced and was completed by 16:37.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Shed Firm Load, Other

FILING CRITERIA(s): WECC Regional Report Filed

2009 NERC Disturbance Reports

Start Date - Time: 10/7/2009 3:04:00 AM CDT **Restoration - Final:** #####

Affected Utility: Consumers Energy Company

Region: RFC **Balancing Authority ID:** PJM **Type:** INT

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

GenMW: **# of Customers:** 53000 **Customer Demand:**

Event Description:

DESCRIPTION: On Oct. 6 at 03:04 and continuing through Oct. 8, severe weather patterns caused numerous interruptions to the utility's distribution and HVD facilities. Winds gusted over 50 mph as a strong fall storm moved through the area. The utility monitored customer outages throughout the course of this storm and the outage management system initially indicated the storm did NOT impact 50,000 for a given hour. However, a post storm evaluation revealed a period when the 50,000 customer threshold was exceeded.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 10/7/2009 5:45:00 AM CDT **Restoration - Final:** #####
Affected Utility: Detroit Edison, Subsidiary of DTE Energy
Region: RFC **Balancing Authority ID:** DEMO **Type:** INT
Cause: Weather-Fall Storm, High Winds, Rain **Category:** Weather
GenMW: **# of Customers:** 75000 **Customer Demand:**

Event Description:

DESCRIPTION: On Oct.7 at 05:45, the utility experienced severe weather conditions due to a fall storm affecting about 75,000 customers over its duration. By 07:30 on Oct. 09 most customers were restored and by 23:00 all affected customers were restored.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 10/9/2009 9:53:00 AM CDT **Restoration - Final:** #####
Affected Utility: Clarksdale Public Utilities
Region: SERC **Balancing Authority ID:** EES **Type:** INT
Cause: Weather-Complete Electrical System Failure **Category:** Weather
GenMW: **# of Customers:** 7102 **Customer Demand:** 24

Event Description:

DESCRIPTION: On Oct. 9 at 09:53, the distribution utility experienced a fault on the transmission system owned and operated by its supplier. As a result, a current differential relay at its Substation caused a trip of a 115 kV circuit breaker and the utility experienced a sixteen minute system-wide outage. The utility's SOC reported that 115 kV transmission line structures had suffered major damage due to severe weather in Arkansas.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 10/9/2009 10:45:00 AM CDT **Restoration - Final:** #####
Affected Utility: Entergy Corporation
Region: SERC **Balancing Authority ID:** EES **Type:** INT
Cause: Weather-Cold Storm **Category:** Weather
GenMW: **# of Customers:** 56000 **Customer Demand:**

Event Description:

DESCRIPTION: On Oct. 9 at 10:45, a strong cold front moved across the utility's distribution systems producing a large number of scattered distribution outages. During the period from 10:45 until 13:30 about 56,000 customers were out of service. Final restoration was completed at approximately 18:00 on Oct. 11.
TYPE OF EMERGENCY: Major Distribution System Interruption
ACTION(s) TAKEN: Repaired/Restored
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 10/9/2009 6:30:00 PM PDT **Restoration - Final:** #####

Affected Utility: California Department of Water Resources

Region: WECC **Balancing Authority ID:** CISO **Type:** UO

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

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Oct. 9 at 18:30, the utility had to shutdown pumping due to a station service (S/S) failure. Maintenance had replaced a S/S during a recent scheduled outage and the new breaker failed. The original breaker was re-installed. A replacement breaker will be scheduled.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 5

2009 NERC Disturbance Reports

Start Date - Time: 10/13/2009 4:00:00 AM PDT **Restoration - Final:** #####
Affected Utility: Pacific Gas and Electric Company
Region: WECC **Balancing Authority ID:** PACE,PAC **Type:** INT
Cause: Weather-Fall Storm, High Winds, Rain **Category:** Weather
GenMW: **# of Customers:** 859554 **Customer Demand:** 350

Event Description:

DESCRIPTION: On Oct. 13 at 04:00, a major storm with high winds and rainfall hit a significant portion of the utility's service territory. At the storms peak, over 250,000 customers were without power for longer than one hour. Overall, about 860,000 customers were affected. Storm conditions resulted in 22 transmission line outages including one 500 kV line. All transmission was restored by 18:00 Oct. 14 and the final customers were restored by 22:30 Oct. 16.
TYPE OF EMERGENCY: Major Distribution System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: ##### MDT **Restoration - Final:** #####
Affected Utility: Western Area Power Administration – Rocky Mountain Region
Region: WECC **Balancing Authority ID:** WAUW **Type:** INT
Cause: Weather-Ice, Shed Firm Load, Ground Fault **Category:** Weather
GenMW: **# of Customers:** 35,000 **Customer Demand:** 101

Event Description:

DESCRIPTION: On Oct. 13 at 12:48, a 115 kV main bus tripped on differential. The voltage dropped from 121 kV to 96 kV. At 12:52 a distribution utility implemented 101 MW of firm load shedding. At 12:58 voltages were returned to normal range. Initial investigation showed a phase A ground fault related to ice on bus work as the probable cause. The ice was cleared from the bus work and the differential cleared. All load was restored by 14:34.
TYPE OF EMERGENCY: Major Transmission System Interruption
ACTION(s) TAKEN: Shed Firm Load; Repaired/Restored
FILING CRITERIA(s): DOE OE-417 # 6

2009 NERC Disturbance Reports

Start Date - Time: 10/13/2009 3:45:00 PM PDT **Restoration - Final:** #####
Affected Utility: Sacramento Municipal Utility District
Region: WECC **Balancing Authority ID:** SMUD **Type:** INT
Cause: Weather-Tropical Storm **Category:** Weather
GenMW: **# of Customers:** 94000 **Customer Demand:** 90

Event Description:

DESCRIPTION: On Oct. 13 at 15:45, the utility experienced a tropical storm that knocked out power in areas across its service territory. High winds, 50 mph, blew tree branches and other debris into lines, causing 94,000 customers to lose power. Line crews and trouble shooters restored the majority of the affected customers with the complete restoration expected by Oct 15.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 10/13/2009 4:09:00 PM PDT **Restoration - Final:** #####

Affected Utility: California ISO

Region: WECC **Balancing Authority ID:** CISO **Type:** PA

Cause: Public Appeal-Downed Transmission **Category:** Public Appeal

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Oct. 13 at 16:09, the utility issued a press release calling for conservation due to the loss of a 500 kV power line. Earlier that day the utility declared a Transmission Emergency. Conservation was requested through 22:00; however, the Transmission Emergency continued until 17:44 Oct. 14.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Made Public Appeals

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 10/22/2009 4:25:00 PM PDT **Restoration - Final:** #####
Affected Utility: Alberta Electric System Operations
Region: WECC **Balancing Authority ID:** AESO **Type:** UO
Cause: Human Error-Relay Operation-Islanding **Category:** Human Error
GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Oct. 22 at 16:25, the utility separated from the Interconnection. The cause was technician error during relay testing on the remote end of a tie line. The separation remedial action scheme operated as designed to isolate the utility from the interconnection. The frequency of the islanded area dropped to 59.895 Hz. The RC was notified. There was no load lost and no generation lost. The island was synchronized with the Interconnection at 17:27.
TYPE OF EMERGENCY: Major Transmission System Interruption
ACTION(s) TAKEN: Other
FILING CRITERIA(s): Regional Report/email Filed

2009 NERC Disturbance Reports

Start Date - Time: 10/30/2009 8:49:00 AM CDT **Restoration - Final:** #####
Affected Utility: Ruston Power and Light
Region: TRE **Balancing Authority ID:** CECD **Type:** INT
Cause: Equipment Failure-Transformer Bushing **Category:** Equipment Failure
GenMW: **# of Customers:** 11000 **Customer Demand:** 28

Event Description:

DESCRIPTION: On Oct. 30 at 08:49, the utility reported a bushing failure on the high side of the main transformer, A phase, of a 115 kV tie line. Utility personnel initiated restoration efforts and placed a backup transformer in service. A total of 11,000 customers and 28 MW of demand were affected. Restoration was completed by 13:15 on Oct 30.

TYPE OF EMERGENCY: Major Distribution System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 3; NERC EOP-004

2009 NERC Disturbance Reports

Start Date - Time: 11/12/2009 6:45:00 PM EST **Restoration - Final:** #####
Affected Utility: Dominion Virginia Power / Dominion North Carolina Power
Region: SERC **Balancing Authority ID:** DUK **Type:** INT
Cause: Weather-Storm **Category:** Weather
GenMW: **# of Customers:** 335000 **Customer Demand:** 400

Event Description:

DESCRIPTION: On Nov. 12, the convergence of the remnants of Tropical Storm Ida and a cold front from the Midwest produced nearly constant rain over the Southeastern United States since Nov. 10. Intense rain and strong winds, gusting over 70 mph, affecting the distribution system and service to 335,000 customers (about 400 MW of load) between 17:30 and 19:30. Contract employees joined in the restoration efforts. It is estimated that affected customers will have their service restored by the end of Nov. 15. Cleanup of water-damaged distribution and several transmission substations is proceeding at a good pace.

TYPE OF EMERGENCY: Major Distribution System Interruption; Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: ##### EST **Restoration - Final:** #####

Affected Utility: Jersey Central Power & Light

Region: RFC **Balancing Authority ID:** PJM **Type:** INT

Cause: Weather-High Winds, Coastal Storm **Category:** Weather

GenMW: **# of Customers:** 13490 **Customer Demand:** 44

Event Description:

DESCRIPTION: On Nov. 13 at 12:01, the utility experienced high winds due to a coastal storm with wind gusts over 50 MPH. At around Noon, a 30-40 Ft long aluminum framed tent / carport from a local landscaper company blew into the 230 kV C phase at a substation. This caused two 230 kV lines to trip to lockout. This resulted in the loss of a 230-12 kV transformer and the loss of the two 230-34 kV transformers at due to loss of the two 230 kV lines supplying area. Repairs and replacement were immediately undertaken.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): RFC Regional Report Filed

2009 NERC Disturbance Reports

Start Date - Time: 11/18/2009 6:15:00 AM PST **Restoration - Final:** #####

Affected Utility: California Department of Water Resources

Region: WECC **Balancing Authority ID:** CISO **Type:** UO

Cause: Human Error-Operator **Category:** Human Error

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Nov. 18, at 06:15, the utility was coordinating with other neighboring utility's and switched out a 230-kV line for scheduled work. During the process of ramping up their pump storage load, operator became aware they had inadvertently failed to close a normally open bus tie that needed to be closed as a result of the scheduled outage. This would normally have been closed before pump load was ramped up. This tie breaker is a no-load disconnect and could not be closed under load. As a result, the utility dropped 600 MW of pump load at various pumping stations to facilitate closing of open breaker. This decision was made to ensure they met their pumping schedule for the day. No customers interrupted at anytime and the pump load was down for approximately one hour and 30 minutes. NERC NOTE: The utility decided to report this event as an OE-417 and the best available choices from the DOE Criteria for Filing was #5. However, the loss was controlled by the utility.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Other

FILING CRITERIA(s): DOE OE-417 # 5

2009 NERC Disturbance Reports

Start Date - Time: 12/7/2009 6:05:00 PM PST **Restoration - Final:** #####

Affected Utility: California Independent System Operator

Region: WECC **Balancing Authority ID:** CISO **Type:** PA

Cause: Weather-Cold, Inadequate Electric Resources **Category:** Weather
to Serve Load

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Dec. 7 due to cold weather, the Reliability Coordinator reported that the load was running about 800-1,000 MW over forecast. Additionally, about 300 MW of resources were lost due an outage of a 500 kV intertie causing the RC to issue a Grid Warning Notice at 18:05. Energy market participants were encouraged to offer additional Supplemental Energy and Ancillary Service bids. There was no public request for conservation; however, conservation efforts were advised without disruption to employment, commerce, or industrial production. Operational reserves were used to recover within the appropriate time frame for both events. The Notice was terminated at 19:15.

TYPE OF EMERGENCY: Major Generation Inadequacy

ACTION(s) TAKEN: Made Public Appeals; Implemented a Warning

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 12/8/2009 6:34:00 AM PST **Restoration - Final:** #####

Affected Utility: California Independent System Operator

Region: WECC **Balancing Authority ID:** CISO **Type:** PA

Cause: Weather-Cold, Inadequate Electric Resources **Category:** Weather
to Serve Load

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Dec. 8 due to cold weather and the loss of a 500 kV intertie the Reliability Coordinator declared a Grid and Generation Restricted Maintenance Operations warning at 06:34. Subsequently a Grid Warning Notice was issued due to the loss of internal resources and restricted imports. Additional generation has been brought on to compensate for the loss of the 500 kV line. There was no public request for conservation; however, conservation efforts were advised without disruption to employment, commerce, or industrial production. The Notice was terminated at 09:00.

TYPE OF EMERGENCY: Major Generation Inadequacy

ACTION(s) TAKEN: Made Public Appeals; Implemented a Warning

FILING CRITERIA(s): DOE OE-417 # 8

2009 NERC Disturbance Reports

Start Date - Time: 12/9/2009 1:37:00 PM EST **Restoration - Final:** #####
Affected Utility: AEP East Transmission
Region: RFC **Balancing Authority ID:** AEPT **Type:** INT
Cause: Weather-Snow, Ice, High Winds **Category:** Weather
GenMW: **# of Customers:** 89800 **Customer Demand:**

Event Description:

DESCRIPTION: On Dec. 9 at 13:37 the utility reported customer outages in excess of 50,000 customers due to severe weather conditions of snow, ice, and high winds. The impact was primarily the distribution system but also tripped three 138 kV transmission/sub transmission lines. At 18:30, the number of customer outages peaked at 89,800.
TYPE OF EMERGENCY: Major Distribution System Interruption; Transmission/Sub transmission System Interruptions
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 12/9/2009 5:45:00 PM CST **Restoration - Final:** #####

Affected Utility: Detroit Edison, Subsidiary of DTE Energy

Region: RFC **Balancing Authority ID:** PJM **Type:** INT

Cause: Weather-Snow, Sleet, High Winds **Category:** Weather

GenMW: **# of Customers:** 52424 **Customer Demand:**

Event Description:

DESCRIPTION: On Dec. 9 at 17:45 the utility reported a loss of 52,424 customers due to severe weather conditions of snow, sleet, and wind gusting up to 50 mph. As of 21:00, Dec. 9, the customer outage count fell below 50,000 customers.
TYPE OF EMERGENCY: Major Distribution System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: 12/15/2009 9:32:00 AM EST **Restoration - Final:** #####
Affected Utility: Hydro-Quebec TransEnergie
Region: NPCC **Balancing Authority ID:** HQT **Type:** UO
Cause: UNKNOWN-To Be Determined **Category:** UNKNOWN
GenMW: 2700 **# of Customers:** **Customer Demand:** 2200

Event Description:

DESCRIPTION: On Dec.15 at 09:32 at a 765 kV substation of the affected utility, an incorrect operation of a system designed to prepare the power station topologies in a situation of system restoration, inadvertently disconnected all the power lines at substation. The protection system correctly detected the loss of the parallel circuits and automatically disconnected 2700 MW of generation and 2200 MW of customer load. The Generation and Transmission were restored within 18 minutes after the incident. Customer loads were restored in 41 minutes after the incident. The interchanges were not affected.

TYPE OF EMERGENCY: Other

ACTION(s) TAKEN: Other

FILING CRITERIA(s): NERC EOP-004; Regional Report Filed

2009 NERC Disturbance Reports

Start Date - Time: 12/18/2009 8:30:00 PM EST **Restoration - Final:** #####
Affected Utility: AEP East Transmission
Region: RFC **Balancing Authority ID:** AEPT **Type:** INT
Cause: Weather-Snow, Sleet, High Winds **Category:** Weather
GenMW: **# of Customers:** 299713 **Customer Demand:**

Event Description:

DESCRIPTION: On Dec. 18 at 21:21 a winter snow storm hit the utility's service area. The heavy wet snow primarily affected the distribution system. Also affected were three 138 kV lines and one 765 kV circuit. Repair and restoration activities were immediately begun. The max number of customers affected during the storm was 299,713 at the peak of the storm on Dec. 19 at 15:00. By 21:30 on Dec. 25, the number of affected customers was 43,000 and decreasing.
TYPE OF EMERGENCY: Major Distribution System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: ##### EST **Restoration - Final:** #####
Affected Utility: Progress Energy – Carolinas Inc
Region: SERC **Balancing Authority ID:** CPLE,CPL **Type:** INT
Cause: Weather-Snow, Sleet, High Winds **Category:** Weather
GenMW: **# of Customers:** 67000 **Customer Demand:**

Event Description:

DESCRIPTION: On Dec.18 at 22:55 a winter snow storm hit the utility's service area affecting the distribution system. Repairs were immediately initiated. The max number of customers affected during the storm was 67,000 at 11:00 on Dec. 19. By 23:15 on Dec.19, that number was below 47,000.
TYPE OF EMERGENCY: Major Distribution System Interruption
ACTION(s) TAKEN: Repaired/Restored; Other
FILING CRITERIA(s): DOE OE-417 # 11

2009 NERC Disturbance Reports

Start Date - Time: ##### MST **Restoration - Final:** #####

Affected Utility: Alberta Electric System Operations

Region: WECC **Balancing Authority ID:** AESO **Type:** UO

Cause: Weather-Galloping Conductors **Category:** Weather

GenMW: **# of Customers:** **Customer Demand:**

Event Description:

DESCRIPTION: On Dec. 21 at 12:40 the utility separated its interconnection tie. The suspected cause of the trip is galloping conductors resulting from winter/wind conditions in the service area. Affected transmission and the interconnection link were restored 18 minutes after the trip.

TYPE OF EMERGENCY: Major Transmission System Interruption

ACTION(s) TAKEN: Repaired/Restored; Other

FILING CRITERIA(s): NERC EOP-004

2009 NERC Disturbance Reports