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July 30, 2015

— Via Email and Federal Express—

Mr. Darrell Nitschke, Executive Secretary
North Dakota Public Service Commission
State Capitol Building – 12th Floor
Bismarck, North Dakota 58505

Re: APPLICANT'S PROPOSED ORDER AND LATE FILED EXHIBITS
REQUEST FOR APPROVAL OF AN ADVANCE DETERMINATION OF PRUDENCE (ADP) FOR A POWER PURCHASE AGREEMENT WITH AURORA SOLAR, LLC FOR UP TO 100 MW OF SOLAR GENERATION (CASE NO. PU-15-095)

Dear Mr. Nitschke:

Northern States Power Company, doing business as Xcel Energy, submits to the North Dakota Public Service Commission in the above-referenced matter, the Company's Proposed Order and the following late filed exhibits:

NSP-LF1 – MISO Cost Benefit Analysis

NSP-LF2 – Minnesota Law and Goals, Dates – cheat sheet

NSP-LF3 – How Does Solar Cost Flow to Wisconsin Company (Wisconsin Interchange Agreement Whitepaper)

NSP-LF4 – Table 1, p. 10 update – (ND view of table 10) (Fall 2014 Forecast, 2016-2030 Resource Plan Charts)

NSP-LF5 – Advanced Determination of Prudence Issue Timeline

NSP-LF6 – Minnesota Competitive Bid Process Overview (force or impact of ND law)

An original and four (4) copies of the Proposed Order and late filed exhibits are being provided via Federal Express. Please contact me if you have any questions regarding this filing.

Sincerely,

David H. Sederquist

DAVID H. SEDERQUIST
Sr. Consultant, Regulation & Finance

Enclosures
cc: Mike Diller
Illona Jeffcoat-Sacco
Victor Schock
Jack Schuh
Jerry Lein

Northern States Power Company
Case No. PU-15-95
MISO Cost Benefit Analysis

The Company has previously filed testimony or comments acknowledging the benefits that the Company receives as a member of MISO. However, those filings do not include a quantitative analysis of MISO's value with respect to the Company specifically. That said, in 2014, MISO prepared a Value Proposition Report, which we have attached as Attachment 1 to Late Filed Exhibit C. We believe that the MISO Report is most responsive to the Commission's inquiry with respect to the value of MISO membership even though it is not a specific analysis performed by the Company since no such analysis exists.

Value Proposition

Value Delivered. Every Day.

With growing energy demands throughout MISO's footprint, our services help ensure reliable, least-cost delivered energy. MISO's Value Proposition documents how we unlock billions in annual benefits for the region. In 2014, those efforts provided between $2.2 billion and $3.1 billion in regional benefits, driven by enhanced reliability, more efficient use of the region's existing transmission and generation assets, and a reduced need for new assets.

MISO's Value Proposition affirms our core belief that a collective, region-wide approach to grid planning and management delivers the greatest benefits. Our landmark analysis serves as a model for other grid operators and transparently communicates the benefits in everything we do.

Defining Our Value Proposition

The value MISO adds became apparent shortly after the energy-only market began in 2005. To quantify this value, MISO – in collaboration with its stakeholders – created the MISO Value Proposition in 2007. The Value Proposition breaks MISO's business model into recognized categories of benefits and calculates a range of dollar values for each defined category.

For 2007 through 2014, the Value Proposition studies revealed that the MISO region realized between $10.1 billion and $13.7 billion in cumulative benefits.

Qualitative Benefits

MISO's Value Proposition also demonstrates significant qualitative benefits:

- Price / Informational Transparency
- Planning Coordination
- Seams Management

Help Us Help You

Questions about studies used for the Value Proposition? Other comments or feedback? Let us know.

Related Documents

One Pager - 2014 Value Propositio
2/19/2015 08:46 AM

2014 Value Proposition Presentatio
2/19/2015 08:43 AM

2014 Benefit Calculations
2/19/2015 08:43 AM

Supporting Study: Regional Generation Outlet Study 2010
12/15/2010 03:53 AM

VPMeetingQA_20150122
3/10/2015 08:07 AM

Supporting Study: The Economic Cost of the Blackout
3/11/2015 02:18 PM

View More

Low Estimate ($ in Mils.)	**$126**
High Estimate ($ in Mils.)	**$188**

Calculation Detail

A	RTO load interrupted (MWh) [1]	200,870	
B	RTO load served (MWh) [2]	2,337,996,679	
C	RTO Transmission System Availability Index (TSAI)	99.991409%	1 - [A / (A + B)]
D	Non-RTO load interrupted (MWh) [1]	141,149	
E	Non-RTO load served (MWh) [2]	1,337,740,680	
F	Non-RTO Transmission System Availability Index (TSAI)	99.989450%	1 - [D / (D + E)]
G	**Transmission System Availability Index difference**	0.001959%	C - F
H	MISO load served (MWh) [3]	667,405,974	
	Low Estimate		
I	Economic cost of outage - low [4]	$9,609	
	Benefit - Low Estimate	$125,654,663	G X H X I
	High Estimate		
J	Economic cost of outage - high [4]	$14,414	
	Benefit - High Estimate	$188,481,994	G X H X J

Sources

[1] RTO/Non-RTO load interrupted is the sum of the "MWh Interrupted" column in the NERC/EIA Database for those disturbances that occurred in a RTO/Non-RTO region divided by 15 (i.e. the number of years in the NERC/EIA Database). This average represents RTO/Non-RTO load interrupted in a typical year. An average is used to smooth year to year volatility.

[2] Similar to Footnote 1, an average of RTO/Non-RTO load served was used.

[3] MISO load from Oct 2013 to Sep 2014 was used to approximate MISO's 2014 load. Information obtained from FERC Form 714 data and public MISO market reports.

[4] ICF, “The Economic Cost of the Blackout.” The ICF paper defined a cost of outage range to be $7,440 to $11,160 per MWh. This range is supported by survey-based studies that estimate an electric consumer’s (i.e. residential, commercial, industrial, and others) willingness-to-pay to avoid such outages. The cost of outage was adjusted from 2003 dollars to 2014 dollars using Actual CPI from the Bureau of Labor Statistics.

Low Estimate ($ in Mils.)	$306
High Estimate ($ in Mils.)	$338

Calculation Detail

Low Estimate ($ in Mils.)

Production cost savings - Low Estimate [1]	$306

High Estimate ($ in Mils.)

Production cost savings - High Estimate [1]	$338

Sources

[1] Dispatch of Energy benefit was based on a MISO study using PROMOD® software

Low Estimate ($ in Mils.)	$81
High Estimate ($ in Mils.)	$90

Calculation Detail

A	Pre-ASM average regulation (MW) [1]	1,559	
B	Post-ASM average regulation (MW) [2]	397	
C	Regulation reduction (MW)	1,162	A - B
	Low Estimate ($ in Mils.)		
D	Production costs savings per MW [3]	$0.070	
	Production cost savings - Low Estimate	$81	C X D
	High Estimate ($ in Mils.)		
E	Production costs savings per MW [3]	$0.077	
	Production cost savings - High Estimate	$90	C X E

Sources

[1] Pre-ASM MISO average regulation (MW) from 4/1/2005 to 12/31/2008 and adjusted for membership changes

[2] Post-ASM average regulation (MW) from October 2013 to September 2014 from October 2014 MISO Informational Forum presentation

[3] Production cost savings per MW was based on a MISO study using PROMOD® software

Note: MISO's market footprint prior to 10/1/2014 was used for these calculations.

Low Estimate ($ in Mils.)	$38
High Estimate ($ in Mils.)	$42

Calculation Detail

A	Pre-ASM average spinning reserves requirement (MW) [1]	1,482	
B	Monthly weighted average spinning reserves requirement (MW) [2]	935	
C	Spinning reserves reduction (MW)	547	A - B
	Low Estimate ($ in Mils.)		
D	Production costs savings per MW [3]	$0.070	
	Production cost savings - Low Estimate	$38	C X D
	High Estimate ($ in Mils.)		
E	Production costs savings per MW [3]	$0.077	
	Production cost savings - High Estimate	$42	C X E

Sources

[1] 2006 Spinning Reserves (based on reserve requirement of 2,635 MW multiplied by 45%) adjusted for membership changes

[2] Monthly weighted average spinning reserves requirement (MW) from October 2013 to September 2014 from MISO's 2014 October Informational Forum Presentation

[3] Production Cost Savings per MW was based on a MISO study using PROMOD® software

Low Estimate ($ in Mils.)	$288
High Estimate ($ in Mils.)	$337

Calculation Detail

A	Wind build out in MISO footprint, 2010-2014 (MW) [1]	5,780	
B	Wind build out without MISO, 2010-2014 (MW) [2]	6,414	
	Cumulative wind savings from 2010 to 2014 (MW)	633	B - A
	Low Estimate ($ in Mils.)		
C	Cumulative wind savings - 2010	154	
D	Initial book value of 1 MW onshore wind unit [3]	$2.699	
E	Annual revenue requirement % - 2010 [4]	16.83%	
F		$70	C x D x E
G	Cumulative wind savings - 2011	169	
H	Initial book value of 1 MW onshore wind unit [3]	$2.699	
I	Annual revenue requirement % - 2011 [4]	17.63%	
J		$80	G x H x I
K	Cumulative wind savings - 2012	189	
L	Initial book value of 1 MW onshore wind unit [3]	$2.458	
M	Annual revenue requirement % - 2012 [4]	18.60%	
N		$86	K x L x M
O	Cumulative wind savings - 2013	17	
P	Initial book value of 1 MW onshore wind unit [3]	$2.447	
Q	Annual revenue requirement % - 2013 [4]	19.29%	
R		$8	O x P x Q
S	Cumulative wind savings - 2014	105	
T	Initial book value of 1 MW onshore wind unit [3]	$2.205	
U	Annual revenue requirement % - 2014 [4]	18.66%	
V		$43	S x T x U
	Annual revenue requirement - Low Estimate	$288	F + J + N + R + V
	High Estimate ($ in Mils.)		
W	Cumulative wind savings - 2010	154	
X	Initial book value of 1 MW onshore wind unit [3]	$3.240	
Y	Annual revenue requirement % - 2010 [4]	16.65%	
Z		$83	W x X x Y
AA	Cumulative wind savings - 2011	169	
BB	Initial book value of 1 MW onshore wind unit [3]	$3.240	
CC	Annual revenue requirement % - 2011 [4]	17.44%	
DD		$95	AA x BB x CC

EE	Cumulative wind savings - 2012	189	
FF	Initial book value of 1 MW onshore wind unit [3]	$2.731	
GG	Annual revenue requirement % - 2012 [4]	18.48%	
HH		$95	EE x FF x GG
II	Cumulative wind savings - 2013	17	
JJ	Initial book value of 1 MW onshore wind unit [3]	$3.059	
KK	Annual revenue requirement % - 2013 [4]	18.95%	
LL		$10	II x JJ x KK
MM	Cumulative wind savings - 2014	105	
NN	Initial book value of 1 MW onshore wind unit [3]	$2.756	
OO	Annual revenue requirement % - 2014 [4]	18.36%	
PP		$53	MM x NN x OO
	Annual revenue requirement - High Estimate	$337	Z + DD + HH + LL + PP

Sources

[1] Registered wind added to MISO footprint from 1/1/2010 to 9/30/2014

[2] Wind build out without MISO from 2010 to 2014 was calculated based on the results of the Regional Generation Outlet Study II (RGOS II). RGOS II was modified to include the MISO footprint only.

RGOS II evaluated the differences between three designs: (1) local, (2) regional, and (3) combination. Local design means renewable energy requirements and goals will be met with resources within the same state as the load. Regional design means renewable requirements and goals will be met with resources located in the highest ranking renewable energy zones. Combination design means renewable energy requirements and goals will be met with a combination of resources located within the RGOS II states and those outside of the RGOS II states with the highest ranking energy zones. Emphasis under the combination design is given to state requirements to locate part, or all of their resources used to meet renewable energy requirements and goals within those states.

RGOS II results (modified for the MISO footprint) showed that a local design resulted in 11% more wind being built as compared to a combination design. The 11% additional wind under the local design was applied to the actual wind added in MISO's footprint to calculate the wind build out in the region without MISO.

[3] High and low estimate of the initial book value of a 1 MW onshore wind turbine generator. Estimates calculated using EGEAS software. Book/tax life = 25/15 years.

[4] Annual revenue requirement calculated using an annual charge rate that includes a rate of return, property tax rate, insurance cost rate, fixed O&M, and depreciation. Annual charge rate calculated using EGEAS software.

Low Estimate ($ in Mils.)	$90
High Estimate ($ in Mils.)	$116

Calculation Detail

Transmission Asset Management Tariff Compliance (Includes Order 1000 Compliance)

		Large-Size Members		Medium-Size Members		Small-Size Members		
		Low	High	Low	High	Low	High	
A	Estimated full-time equivalents [1]	5.6	9.4	1.9	3.1	0.9	1.6	
B	Affected members [2],[3]	4	4	9	9	29	29	
C	Total Hours	46,800	78,000	35,100	58,500	56,550	94,250	**A X B X 2,080**
	Hourly rate (**D** Internal Rate-$66, **E** External Rate-$175)	$66 @ 80% $175 @ 20%	$66 @ 70% $175 @ 30%	$66 @ 80% $175 @ 20%	$66 @ 70% $175 @ 30%	$66 @ 80% $175 @ 20%	$66 @ 70% $175 @ 30%	
	Benefit ($ in Mils.)	$4.1	$7.7	$3.1	$5.8	$5.0	$9.3	**Low: C X (D X 80% + E X 20%)** **High: C X (D X 70% + E X 30%)**

Transmission Asset Management Tariff Compliance	Low Estimate	High Estimate
	$12.2	$22.8

Transmission Asset Management Order 890 Compliance

		Large-Size Members		Medium-Size Members		Small-Size Members		
		Low	High	Low	High	Low	High	
F	Estimated full-time equivalents [1]	6.0	9.8	2.0	3.3	1.0	1.6	
G	Affected members [2],[3]	3	3	7	7	23	23	
H	Total Hours	37,440	60,840	29,120	47,320	47,840	77,740	**F X G X 2,080**
	Hourly rate (**I** Internal Rate-$66, **J** External Rate-$175)	$66 @ 80% $175 @ 20%	$66 @ 70% $175 @ 30%	$66 @ 80% $175 @ 20%	$66 @ 70% $175 @ 30%	$66 @ 80% $175 @ 20%	$66 @ 70% $175 @ 30%	
	Benefit ($ in Mils.)	$3.3	$6.0	$2.6	$4.7	$4.2	$7.7	**Low: H X (I X 80% + J X 20%)** **High: H X (I X 70% + J X 30%)**

Transmission Asset Management Order 890 Compliance	Low Estimate	High Estimate
	$10.0	$18.3

Transmission Asset Management NERC Compliance

		Large-Size Members		Medium-Size Members		Small-Size Members		
		Low	High	Low	High	Low	High	
K	Estimated full-time equivalents [1]	4.5	5.3	1.5	1.8	0.8	0.9	
L	Affected members [2],[3]	4	4	9	9	29	29	
M	Total Hours	37,440	43,680	28,080	32,760	45,240	52,780	**K X L X 2,080**
	Hourly rate (N Internal Rate-$66, O External Rate-$175)	$66 @ 80% $175 @ 20%	$66 @ 70% $175 @ 30%	$66 @ 80% $175 @ 20%	$66 @ 70% $175 @ 30%	$66 @ 80% $175 @ 20%	$66 @ 70% $175 @ 30%	
	Benefit ($ in Mils.)	$3.3	$4.3	$2.5	$3.2	$4.0	$5.2	**Low: M X (N X 80% + O X 20%)** **High: M X (N X 70% + O X 30%)**

Transmission Asset Management NERC Compliance	Low Estimate	High Estimate
	$9.7	$12.8

Operations Compliance

		Large-Size Members		Medium-Size Members		Small-Size Members		
		Low	High	Low	High	Low	High	
P	Estimated full-time equivalents [1]	34.5	34.5	11.5	11.5	5.8	5.8	
Q	Affected members [2],[3]	4	4	9	9	29	29	
R	Total Hours	287,040	287,040	215,280	215,280	346,840	346,840	**P X Q X 2,080**
	Hourly rate (S Internal Rate-$66, T External Rate-$95)	$66 @ 90% $95 @ 10%	$66 @ 75% $95 @ 25%	$66 @ 90% $95 @ 10%	$66 @ 75% $95 @ 25%	$66 @ 90% $95 @ 10%	$66 @ 75% $95 @ 25%	
	Benefit ($ in Mils.)	$19.8	$21.0	$14.8	$15.8	$23.9	$25.4	**Low: R X (S X 90% + T X 10%)** **High: R X (S X 75% + T X 25%)**

Operations Compliance	Low Estimate	High Estimate
	$58.5	$62.2

Sources

[1] Full-time equivalents (FTEs) for large-size members based on internal MISO analysis. Medium-size members estimated to save 1/3 of a large-size member's FTEs. Small-size members estimated to save 1/6 of a large-size member's FTEs.

[2] Members were divided into large, medium, and small based on their electric sales (in MWh). Members with sales above 50 million MWhs are classified as large. Medium-size members have electric sales between 10 million and 50 million MWhs. Small-size members have electric sales below 10 million MWhs.

[3] MISO members with multiple operating utilities in MISO were counted as one member because it was assumed their compliance functions were managed through their service company.

Low Estimate ($ in Mils.)	$1,234
High Estimate ($ in Mils.)	$1,834

Calculation Detail

Low Estimate ($ in Mils.)

A	2014 forecasted without MISO non-coincident peak load (MW) [1]	133,436	
B	2014 required planning reserve margin without MISO [2]	16.65%	
C	2014 required capacity without MISO (MW)	155,653	A X (1 + B)
D	2014 forecasted MISO coincident peak load (MW) [3]	127,247	
E	2014 required planning reserve margin with MISO [4]	14.98%	
F	2014 required capacity with MISO (MW)	146,312	D X (1 + E)
G	**Additional capacity required without MISO (MW)**	9,341	C - F
H	Initial book value of 1 MW combustion turbine unit [5]	$0.748	
I	Annual revenue requirement % [6]	17.66%	
	Annual revenue requirement - Low Estimate	$1,234	G X H X I

High Estimate ($ in Mils.)

A	2014 forecasted without MISO non-coincident peak load (MW) [1]	133,436	
B	2014 required planning reserve margin without MISO [2]	18.08%	
C	2014 required capacity without MISO (MW)	157,561	A X (1 + B)
D	2014 forecasted MISO coincident peak load (MW) [3]	127,247	
E	2014 required planning reserve margin with MISO [4]	14.98%	
F	2014 required capacity with MISO (MW)	146,312	D X (1 + E)
G	**Additional capacity required without MISO (MW)**	11,249	C - F
H	Initial book value of 1 MW combustion turbine unit [5]	$0.936	
I	Annual revenue requirement % [6]	17.43%	
	Annual revenue requirement - High Estimate	$1,834	G X H X I

Sources

[1] Forecasted 2014 non-coincident peak (NCP) summarized by Local Resource Zones (LRZs) that was provided to MISO by LSE's in accordance with Module E-1 for the 2014-2015 Resource Adequacy Planning Year.

[2] Low estimate uses the average of the LRZs local reliability requirement per unit of load (ICAP%) prepared as part of MISO's Planning Year 2014 LOLE Study with exception to LRZ 8 & 9 which used 2015 LOLE study results due to updates to the MISO South demand forecasts and assumes each LRZ has import capability of firm purchases (total 3,103 MW) and a level of non-firm external support (total 1,900 MW). High estimate uses the same method but assumes no non-firm external support is available.

[3] Forecasted 2014 MISO coincident peak utilized to determine the Resource Adequacy requirement utilized in the 2014 Planning Resource Auction

[4] 2014 MISO required planning reserve margin which is adjusted to reflect the impact LRZ 8's procurement requirement from the 2014 Planning Resource Auction had on the 14.8% planning reserve margin from the 2014 LOLE study

[5] Estimate of the initial book value of a 1 MW combustion turbine generator. Estimates calculated using EGEAS software. Book/tax life = 30/15 years.

[6] Annual revenue requirement calculated using an annual charge rate that includes a rate of return, property tax rate, insurance cost rate, fixed O&M, and depreciation. Annual charge rate calculated using EGEAS software.

Low Estimate ($ in Mils.)	$272
High Estimate ($ in Mils.)	$336

Calculation Detail

A	2014 forecasted MISO coincident peak load (MW) [1]	96,244	
B	2014 required planning reserve margin [2]	14.80%	
C	2014 required capacity with MISO (MW)	110,488	A X (1 + B)
D	2014 required capacity with MISO (MW)	110,488	C
E	Generator availability improvement [3]	1.87%	
F	2014 required capacity at pre-MISO generator availability (MW)	112,549	D / (1 + E)
G	**Additional capacity required without MISO (MW)**	2,061	F - C
	Low Estimate ($ in Mils.)		
H	Initial book value of 1 MW combustion turbine unit [4]	$0.748	
I	Annual revenue requirement % [5]	17.66%	
	Annual revenue requirement - Low Estimate	$272	G X H X I
	High Estimate ($ in Mils.)		
J	Initial book value of 1 MW combustion turbine unit [4]	$0.936	
K	Annual revenue requirement % [5]	17.43%	
	Annual revenue requirement - High Estimate	$336	G X J X K

Sources

[1] Forecasted 2014 MISO coincident peak, for MISO North and Central Zones, used to determine the Resource Adequacy requirement utilized in the 2014 Resource Adequacy auction. The South region was not included in this calculation because the South did not integrate until December 19, 2013 and annual generator availability data was only available through 2013.

[2] MISO's Planning Year 2014 LOLE Study Report.

[3] The generator availability improvement is calculated using Generator Availability Data System (GADS) data from 2000 to 2013. The equivalent availability factor (EAF) metric is used which is a measure of the actual maximum capability of a unit to generate electricity relative to the theoretically possible amount.

[4] High and low estimate of the initial book value of a 1 MW combustion turbine generator. Estimates calculated using EGEAS software. Book/tax life = 30/15 years.

[5] Annual revenue requirement calculated using an annual charge rate that includes a rate of return, property tax rate, insurance cost rate, fixed O&M, and depreciation. Annual charge rate calculated using EGEAS software.

Low Estimate ($ in Mils.)	$52
High Estimate ($ in Mils.)	$105

Calculation Detail

	Low Estimate ($ in Mils.)		
A	2014 Total Committed Demand Response in MISO North/Central (MW)	4,636	
B	2009 Total Committed Demand Response in MISO North/Central (MW)	2,858	
C	MISO North/Central Incremental Demand Response 2009 to 2014 (MW	1,778	A - B
D	Incremental Demand Response assumed facilitated by MISO	25%	
E	Capacity deferred due to incremental Demand Response facilitated by MISO (MW)	445	C * E
F	Initial book value of 1 MW combustion turbine unit [2]	$0.748	
G	Annual revenue requirement % [3]	17.66%	
H	Annual revenue requirement	$59	E x F x G
I	Less Demand Response capacity payments [4]	$7	
	Net annual revenue requirement - Low Estimate	$52	H - I
	High Estimate ($ in Mils.)		
J	Incremental Demand Response assumed facilitated by MISO	40%	
K	Capacity deferred due to incremental Demand Response enabled by MISO (MW)	711	C * J
L	Initial book value of 1 MW combustion turbine unit [2]	$0.936	
M	Annual revenue requirement % [3]	17.43%	
N	Annual revenue requirement	$116	K x L x M
O	Less Demand Response capacity payments [4]	$11	
	Net annual revenue requirement - High Estimate	$105	N -O

Sources

[1] Total Demand Response committed in MISO adjusted to include the losses and reserves that are avoided when Demand Response is utilized.

[2] High and low estimate of the initial book value of a 1 MW combustion turbine generator. Estimates calculated using EGEAS software. Book/tax life = 30/15 years.

[3] Annual revenue requirement % calculated using an annual charge rate that includes a rate of return, property tax rate, insurance cost rate, and depreciation. Annual charge rate calculated using EGEAS software.

[4] 2014 MISO Demand Response capacity payments ($28 million) multiplied by incremental demand response assumed facilitated by MISO

Low Estimate ($ in Mils.)	$257
High Estimate ($ in Mils.)	$257

Calculation Detail ($ in Mils.)

A	Schedule 10 costs [1]	$125.3	
B	Schedule 16 costs [1]	$14.5	
C	Schedule 17 costs [1]	$114.1	
D	Schedule 31 costs [1]	$3.3	
	Total operating costs	$257.2	A + B + C + D

Sources

[1] MISO Schedule 10, 16, 17 & 31 Budget for 2014

MISO

2014 Value Proposition
Improved Reliability Benefit - Disturbance Database

Data Source	Disturbance Duration		Disturbance Location						Disturbance Size		Disturbance Description		Filters		
NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	1/3/2000 22:48	2.8	IMO	Independent Electricity Market Operator	NPCC-Ontario	N	Y	N	60,000	326	INT	Weather	Y	Y	Y
NERC	1/23/2000 8:00	124.0	DUK	Duke Power Company	SERC-VACAR	Y	N	N	133,000	450	INT	Weather - Snow and Ice storm	Y	Y	Y
NERC	1/24/2000 4:39	89.0	DPC	Dairyland Power Coop.	MAPP	Y	N	N	0	N/A	UO	Equipment failure	N	N	Y
NERC	1/24/2000 17:00	31.0	SCEG	South Carolina Electric & Gas Co.	SERC-VACAR	Y	N	N	62,000	N/A	INT	Weather	N	N	Y
NERC	1/24/2000 19:00	137.0	CPLE	Carolina Power & Light Co.	SERC-VACAR	Y	N	N	173,000	960	INT	Weather	Y	Y	Y
NERC	1/29/2000 22:00	110.0	DUK	Duke Power Company	SERC-VACAR	Y	N	N	81,000	300	INT	Weather	Y	Y	Y
NERC	2/2/2000 15:15	0.1	OTP	Otter Tail Power Co.	MAPP	Y	Y	Y	20,000	100	INT	Human Error	Y	Y	Y

MISO

2014 Value Proposition
Improved Reliability Benefit - Disturbance Database

NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	2/26/2000 7:04	0.3	SCE	Southern California Edison Co.	WECC-CAMX	Y	Y	N	112,000	300	Int	Operator error	Y	N	Y
NERC	3/17/2000 12:13	1.0	NEVP	Nevada Power Company	WECC-AZNMSNV	Y	N	N	N/A	40	INT	Operator Error	Y	Y	Y
NERC	3/18/2000 15:57	18.9	EPE	El Paso Electric Co. and Public Service Co. of New Mexico	WECC-AZNMSNV	Y	N	N	600,000	1,590	DR	Brush fire	N	Y	Y
NERC	3/21/2000 20:46	0.4	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	INT	Unknown	N	N	Y
NERC	4/1/2000 8:52	1.5	LWU	City of Lake Worth Utilities	FRCC	Y	N	N	24,000	46	INT	Equipment failure	Y	Y	Y
NERC	4/1/2000 16:47	0.9	VAP	Virginia Power	SERC-VACAR	Y	Y	N	37,000	143	INT	Equipment failure	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	4/20/2000 22:04	N/A	MHEB	Manitoba Hydro	MAPP-Canada	Y	Y	Y	0	N/A	UO	Equipment failure	N	N	Y
NERC	5/2/2000 4:00	19.0	ERCO	Reliant Energy HL&P	ERCOT	Y	Y	N	238,000	N/A	INT	Severe weather	N	Y	Y
NERC	5/8/2000 13:45	4.4	CE	Connectiv, Inc.	MAAC	Y	Y	N	N/A	N/A	VR	High demand/capacity shortage	N	N	Y
NERC	5/9/2000 11:39	5.9	CECNY	Consolidated Edision of NY and NY ISO	NPCC_NYISO	Y	Y	N	N/A	N/A	PA	Operating reserve shortage	N	N	Y
NERC	5/18/2000 18:00	N/A	CEC	Commonwealth Edison Co.	MAIN	Y	Y	Y	50,000	N/A	INT	Severe weather	N	Y	Y
NERC	5/20/2000 23:00	41.0	DUK	Duke Power Company	SERC-VACAR	Y	N	N	50,000	200	INT	Severe wather	Y	Y	Y
NERC	5/25/2000 10:00	133.0	DUK	Duke Power Company	SERC-VACAR	Y	N	N	147,000	500	INT	Severe weather	Y	Y	Y
NERC	5/25/2000 10:15	7.7	EES	Entergy	SPP	Y	N	N	N/A	N/A	PA	Capacity shourtage, high temperatures	N	N	Y
NERC	6/9/2000 6:55	0.0	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	1	50	INT	Switching error	Y	Y	Y
NERC	6/9/2000 7:32	1.9	MHEB	Manitoba Hydro	MAPP-Canada	Y	Y	Y	N/A	N/A	INT	Human error	N	N	Y
NERC	6/14/2000 13:13	3.3	CISO	California Independent System Operator	WECC-CAMX	Y	Y	N	32,000	130	DR	Capacity shortage	N	N	Y
NERC	6/14/2000 15:45	0.2	AEPT	American Electric Power	ECAR	Y	Y	N	N/A	294	INT	Equipment failure	Y	Y	Y
NERC	6/14/2000 15:54	1.1	TEPC	Tucson Electric Power Company	WECC-AZNMSNV	Y	N	N	40,911	138	DR	Fire	N	Y	Y
NERC	6/28/2000 17:52	1.4	VAP	Virginia Power/North Carolina	SERC-VACAR	Y	Y	N	30,500	175	INT	Weather	Y	Y	Y
NERC	6/29/2000 20:44	3.0	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	1	1,630	INT	Equipment malfunction	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	7/3/2000 5:20	1.3	AELC	Alaska Electric Light & Power	ASCC	N	N	N	14,273	35	INT	Line fault	Y	Y	Y
NERC	7/5/2000 4:08	0.8	BCHA	British Columbia Hydro & Power Authority	WECC-NWPP	N	N	N	N/A	325	INT	Unknown	Y	Y	Y
NERC	7/10/2000 4:58	0.0	HQT	Hydro-Quebec TransEnergie	WECC-NWPP	N	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	7/13/2000 14:42	5.3	IMO	Independent Electricity Market Operator	NPCC-Ontario	N	Y	N	0	N/A	UO	Equipment failure and weather - lightning	N	N	Y
NERC	7/17/2000 18:31	0.1	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	7/20/2000 13:56	N/A	AEC	Alabama Power Company	SERC-Southern	Y	N	N	160,000	N/A	INT	Weather	N	Y	Y
NERC	8/4/2000 13:56	0.4	PPOA	Power Pool of Alberta	WECC-NWPP	N	N	N	N/A	190	INT	Weather - lightning	Y	Y	Y
NERC	8/6/2000 16:00	32.0	CE	Commonwealth Edison	MAIN	Y	Y	Y	230,000	N/A	INT	Severe weather	N	Y	Y
NERC	8/9/2000 18:30	29.5	CIN	Cinergy	ECAR	Y	Y	Y	92,000	N/A	INT	Severe weather	N	Y	Y
NERC	8/10/2000 21:30	20.5	AEC	Alabama Power Company	SERC-Southern	Y	N	N	75,000	N/A	INT	Severe weather	N	Y	Y
NERC	8/18/2000 18:00	78.0	DUK	Duke Power Company	SERC-VACAR	Y	N	N	130,000	500	INT	Severe weather	Y	Y	Y
NERC	8/22/2000 8:33	0.4	IMO	Independent Electricity Market Operator	NPCC-Ontario	N	Y	N	1	130	INT	Severe weather	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	8/28/2000 12:00	8.0	SIGE	Southern Indiana Gas & Electric Co.	ECAR	Y	Y	Y	124,000	15	PA	Inadequate generating reserves	N	N	Y
NERC	8/31/2000 13:39	N/A	IMO	Independent Electricity Market Operator	NPCC-Ontario	N	Y	N	N/A	N/A	VR	Equipment malfunction	N	N	N
NERC	9/1/2000 6:38	N/A	GPC	Georgia Power Company	SERC-Southern	Y	N	N	N/A	N/A	UO	Lightning	N	N	N
NERC	9/17/2000	36.0	FPL	Florida Power Company	FRCC	Y	N	N	120,000	N/A	INT	Weather - Hurricane Gordon	N	Y	Y
NERC	9/19/2000 20:25	0.1	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Human error	N	N	Y
NERC	9/28/2000 8:45	0.0	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Human error	N	N	Y
NERC	10/8/2000 16:00	2.3	CE	Commonwealth Edision	MAIN	Y	Y	Y	11,000	N/A	INT	Equipment failure	N	N	Y
NERC	10/29/2000 18:50	0.1	MHEB	Manitoba Hydro	MAPP-Canada	Y	Y	Y	0	N/A	UO	Equipment failure	N	N	Y
NERC	10/31/2000 18:29	8.2	NPPD	Nebraska Public Power District	MAPP	Y	Y	Y	0	N/A	UO	Weather	N	N	Y
NERC	11/2/2000 2:23	0.0	SCE	Southern California Edison	WECC-CAMX	Y	Y	N	N/A	160	INT	Fire	Y	Y	Y
NERC	12/7/2000 17:15	2.3	CISO	California Independent System Operator	WECC-CAMX	Y	Y	N	N/A	1,500	DR	Inadequate generation resources	N	N	Y
NERC	12/13/2000	168.0	SPA	Southwest Power Pool	SPP	Y	Y	N	235,000	1,400	INT	Weather - ice storm	Y	Y	N
NERC	12/16/2000 11:36	12.4	AEC	Alabama Power Company	SERC-Southern	Y	N	N	50,000	N/A	INT	Weather - tornado	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	12/20/2000 2:31	15.0	NBPwr	New Brunswick Power Corp.	NPCC-Maritimes	N	Y	N	N/A	530	INT	Weather - ice storm	Y	Y	Y
NERC	12/25/2000 0:00	336.0	SPA	Southwest Power Pool	SPP	Y	Y	N	94,285	460	INT	Weather - ice storm	Y	Y	N
NERC	1/3/2001 22:04	0.4	HQT	Hydro-Quebec	NPCC-HQ	N	N	N	71,000	450	INT	Switching error	Y	Y	Y
NERC	1/16/2001 6:00	18.0	CISO	California Independent System Operator (ISO) and various California Utilities	WECC-CAMX	Y	Y	N	N/A	1,146	INT	Insufficient generation	N	N	Y
NERC	1/16/2001 22:38	2.6	BCHA	British Columbia Hydro & Power Authority (BCHA)	WECC-NWPP	N	N	N	100,000	430	INT	Equipment failure	Y	Y	Y
NERC	1/17/2001 5:00	19.0	CISO	California Independent System Operator (ISO) and various California Utilities	WECC-CAMX	Y	Y	N	N/A	841	INT	Insufficient generation	N	N	Y
NERC	1/17/2001 17:57	2.3	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	234,000	N/A	INT	Equipment failure	N	N	Y
NERC	1/18/2001 9:00	3.0	CISO	California Independent System Operator (ISO) and various California Utilities	WECC-CAMX	Y	Y	N	N/A	1,000	INT	Insufficient generation	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	1/21/2001 13:00	9.0	CISO	California Independent System Operator (ISO) and various California Utilities	WECC-CAMX	Y	Y	N	N/A	101	INT	Insufficient generation	N	N	Y
NERC	1/22/2001 7:48	1.8	NYIS	Consolidated Edison Company of New York, Inc.	NPCC	Y	Y	N	0	N/A	UO	Fire	N	N	Y
NERC	1/31/2001 9:13	0.2	EPE	El Paso Electric Company	WECC-AZNMSNV	Y	N	N	N/A	116	INT	Transmission line fault	Y	Y	Y
NERC	2/10/2001 5:05	0.9	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	N/A	N/A	UO	Equipment failure	N	N	Y
NERC	2/16/2001 15:15	N/A	APC	Alabama Power Company	SERC	Y	N	N	300,000	N/A	INT	Weather - severe	N	N	Y
NERC	2/28/2001 10:55	25.1	BPAT	Various Pacific Northwest Region Companies	WECC-NWPP	Y	N	N	258,000	1,340	INT	Earthquake	Y	Y	Y
NERC	3/6/2001 9:17	N/A	ISNE	Independent System Operator - New England	NPCC	Y	Y	N	130,000	340	INT	Weather - severe storm	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	3/10/2001 17:35	2.3	SPC	SaskPower	MAPP	N	N	N	246,000	1,250	INT	Equipment problems	Y	Y	Y
NERC	3/14/2001 12:30	26.5	ERCO	Reliant Energy/HL&P	ERCOT	Y	Y	N	114,000	N/A	INT	Weather - severe	N	Y	Y
NERC	3/19/2001 9:00	11.0	CISO	California Independent System Operator (ISO)	WECC-CAMX	Y	Y	N	N/A	1,000	INT	Insufficient generation	N	N	Y
NERC	3/20/2001 8:00	12.0	CISO	California Independent System Operator (ISO)	WECC-CAMX	Y	Y	N	N/A	500	INT	Insufficient generation	N	N	Y
NERC	4/4/2001 10:46	N/A	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	0	N/A	UO	Maintenance Error	N	N	Y
NERC	4/6/2001 6:43	3.2	TPWR	Tacoma Power System	WECC-NWPP	Y	N	N	120,000	600	INT	Insulator failure	Y	Y	Y
NERC	4/12/2001 13:31	0.0	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	0	N/A	UO	Operator error	N	N	Y
NERC	5/7/2001 10:00	8.0	CISO	California Independent System Operator (ISO)	WECC-CAMX	Y	Y	N	N/A	300	INT	Insufficient generation	N	N	Y
NERC	5/8/2001 11:00	8.0	CISO	California Independent System Operator (ISO)	WECC-CAMX	Y	Y	N	N/A	400	INT	Insufficient generation	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	5/14/2001 7:07	N/A	Xcel	Excel Energy	MAPP	Y	Y	Y	0	N/A	UO	Equipment malfunction	N	N	Y
NERC	6/1/2001 13:30	N/A	ISNE	Independent System Operator - New England	NPCC	Y	Y	N	0	N/A	UO	Equipment failure	N	N	Y
NERC	6/6/2001 16:22	2.8	AEP	American Electric Power - Central Power & Light Company	ERCOT	Y	Y	N	24,506	350	INT	Contractor accident	Y	Y	Y
NERC	6/8/2001 20:00	169.0	HLPT	Reliant Energy/HL&P	ERCOT	Y	Y	N	36,073	N/A	INT	Severe weather	N	Y	N
NERC	6/11/2001 16:50	0.1	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	N/A	620	INT	Weather - lightning	Y	Y	Y
NERC	6/18/2001 2:04	N/A	Xcel	Excel Energy	MAPP	Y	Y	Y	0	N/A	INT	Equipment failure	N	N	Y
NERC	6/25/2001 14:25	32.2	NYIS	Consolidated Edison Company of New York, Inc.	NPCC	Y	Y	N	0	N/A	UO	Loss of distribution network feeders	N	N	Y
NERC	6/27/2001 12:22	N/A	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	0	N/A	UO	Equipment failure	N	N	Y
NERC	7/2/2001 16:03	0.7	NEVP	Nevada Power Company	WECC-AZNMSNV	Y	N	N	10,000	100	DR	Insufficient generation	N	N	Y
NERC	7/8/2001 1:16	0.4	IMO	Independent Electricity Market Operator	NPCC	N	Y	N	160,000	500	INT	Equipment failure	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	7/13/2001 8:20	0.3	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	0	N/A	UO	Equipment failure	N	N	Y
NERC	7/21/2001 17:01	0.2	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	7/21/2001 20:07	0.8	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	7/21/2001 20:22	0.6	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	7/22/2001 16:01	1.3	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	7/22/2001 19:50	N/A	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	0	N/A	UO	Maintenance error	N	N	Y
NERC	7/24/2001 14:29	1.3	HQT	Hydro-Quebec/TransEnergie	NPCC-HQ	N	N	N	N/A	390	INT	Weather - lightning	Y	Y	Y
NERC	8/1/2001 5:37	7.8	MPCO	Montana Power Company	WECC	Y	N	N	0	N/A	UO	Line fault	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	8/7/2001 0:13	N/A	MHEB	Manitoba Hydro	MAPP	Y	Y	Y	0	N/A	UO	Special protection system missoperation	N	N	Y
NERC	8/9/2001 15:11	4.0	PJM	Electric utilities in the PJM Interconnection and Dominion - Virginia Power	MAAC	Y	Y	N	600,000	1,000	VR	Weather - heat wave, low voltage	N	N	Y
NERC	8/9/2001 15:11	4.0	VAP	Electric utilities in the PJM Interconnection and Dominion - Virginia Power	SERC	Y	Y	N	600,000	200	VR	Weather - heat wave, low voltage	N	N	Y
NERC	8/20/2001 14:40	N/A	NYIS	Consolidated Edison Company of New York, Inc.	NPCC	Y	Y	N	0	N/A	VR	Loss of distribution feeders	N	N	Y
NERC	9/6/2001 3:35	N/A	MPCO	Montana Power Company	WECC-RMPA	Y	N	N	0	N/A	UO	Line fault	N	N	Y
NERC	9/11/2001 8:48	N/A	NYIS	Consolidated Edison Company of New York, Inc.	NPCC	Y	Y	N	12,000	190	DR	Terrorist Act	N	N	Y
NERC	9/14/2001 4:00	N/A	FPC	Florida Power Corporation and Tampa Electric Company	FRCC	Y	N	N	203,000	N/A	INT	Weather - Hurricane Gabrielle	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	9/18/2001 8:26	1.8	CISO	Burbank Public Service Department	WECC-CAMX	Y	N	N	50,462	134	INT	Equipment failure	Y	Y	Y
NERC	9/24/2001 21:51	0.7	CISO	Modesto Irrigation District	WECC-CAMX	Y	N	N	40,000	150	INT	Weather - lightning	Y	Y	Y
NERC	9/25/2001 0:52	0.6	CISO	Modesto Irrigation District	WECC-CAMX	Y	N	N	59,000	138	INT	Weather - lightning	Y	Y	Y
NERC	9/25/2001 23:20	4.2	HST	City of Homestead, FL	FRCC	Y	N	N	15,000	49	INT	Equipment failure	Y	Y	Y
NERC	10/2/2001 8:46	0.1	PJM	Potomac Electric Power Company	MAAC	Y	Y	N	1,646	168	INT	Unknown	Y	Y	Y
NERC	11/14/2001 6:35	5.2	ATC	American Transmission Company acting for Wisconsin Electric Power Co., Edison Sault Electric Co., Wisconsin PS Corp., and Upper Peninsula Power Co.	MAIN	Y	Y	Y	N/A	263	INT	Ground fault	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	11/24/2001 0:00	N/A	CISO	Pacific Gas & Electric Company	WECC-CAMX	Y	Y	N	500,000	N/A	INT	Weather - severe	N	Y	Y
NERC	12/11/2001 17:56	N/A	FRCC_all	Florida Reliability Coordination Council for all FL utilities	FRCC	Y	N	N	N/A	1,200	INT	Missoperation of a special protection system	N	N	N
NERC	1/30/2002 18:00	198.0	OKGE	Oaklahoma Gas & Electric Co., Kansas City Light & Power Co. and Missouri Public Service Co.	SPP	Y	Y	N	570,000	1,310	INT	Weather - Ice storm	Y	Y	N
NERC	2/27/2002 10:07	0.6	IMO	NPCC-Ontario	Independent Electricity Market Operator	N	Y	N	N/A	319	INT	Equipment failure	Y	N	Y
NERC	2/27/2002 10:42	0.9	SDGE	San Diego Gas & Electric Company	WECC-CAMX	Y	Y	N	210,882	340	DR	Human error	N	Y	Y
NERC	2/28/2002 21:24	6.5	CISO	WECC-CAMX	California Independent System Operator	Y	Y	N	0	850	UO	Equipment failure	Y	Y	Y
NERC	3/9/2002 12:00	60.0	CEC	ECAR	Consumers Energy Company	Y	Y	Y	190,000	190	INT	Weather - severe storm	Y	Y	Y
NERC	3/9/2002 17:01	2.8	IMO	NPCC-Ontario	Independent Electricity Market Operator	N	Y	N	46,000	196	INT	Weather - strong winds	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	3/20/2002 9:14	0.8	PPOA	WECC-NWPP	Power Pool of Alberta	N	N	N	17,000	274	INT	Equipment failure	Y	Y	Y
NERC	3/21/2002 13:32	N/A	HQT	NPCC-Quebec	Hydro-Quebec TransEnergie	N	Y	N	0	N/A	UO	Human error	N	N	Y
NERC	3/25/2002 6:07	N/A	NBPwr	NPCC-Maritimes	New Brunswick Power Corpration	N	Y	N	0	N/A	UO	Logging activity	N	N	Y
NERC	4/17/2002 12:26	6.6	AZPS	WECC-AZNMSNV	Arizona Public Service Company	Y	N	N	0	N/A	UO	Equipment failure	N	N	Y
NERC	4/23/2002 15:50	4.2	AEP	ECAR	AEP and Indianapolis Power & Light Company	Y	Y	Y	1	39	INT	Equipment failure	Y	Y	Y
NERC	4/27/2002 20:44	N/A	MHEB	MAPP-Canada	Manitoba Hydro Transmission Services	N	Y	Y	0	N/A	UO	Equipment failure	N	N	Y
NERC	4/29/2002 16:21	7.6	JEA	FRCC	Jacksonville Electricity Authority	Y	N	N	360,000	2,100	INT	Equipment failure	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	5/13/2002 18:45	41.3	DUK	SERC-VACAR	Duke Energy Corporation	Y	N	N	74,000	250	INT	Severe thunderstorms	Y	Y	Y
NERC	6/6/2002 13:48	N/A	CISO	WECC-CAMX	California Independent System Operator	Y	Y	N	0	N/A	UO	Wild fires	N	N	Y
NERC	6/18/2002 1:30	1.8	BCHA	WECC-NWPP	British Columbia Hydro Power Authority	N	N	N	19,000	334	INT	Weather - lightning	Y	Y	Y
NERC	6/26/2002 18:13	3.7	CISO	WECC-CAMX	California Independent System Operator	Y	Y	N	460,000	1,450	INT	Wild fires	Y	Y	Y
NERC	7/3/2002 15:31	0.8	NBPwr	NPCC-Maritimes	New Brunswick Power Corporation	N	Y	N	65,000	210	INT	Ground fault & equipment failure	Y	Y	Y
NERC	7/9/2002 0:46	2.0	LWU	FRCC	Lake Worth Utilities	Y	N	N	18,351	33	INT	Weather - lightning & equipment failure	Y	Y	Y
NERC	7/9/2002 9:56	1.7	LWU	FRCC	Lake Worth Utilities	Y	N	N	25,000	48	INT	Equipment failure	Y	Y	Y
NERC	7/11/2002 16:00	N/A	IMO	NPCC-Ontario	Independent Electricity Market Operator	N	Y	N	0	N/A	OSL	Ground fault	N	N	Y
NERC	7/15/2002 18:35	0.1	LWU	FRCC	Lake Worth Utilities	Y	N	N	25,000	83	INT	Equipment failure	Y	Y	Y
NERC	7/20/2002 8:35	N/A	IMO	NPCC-Ontario	Independent Electricity Market Operator	N	Y	N	0	N/A	OSL	Equipment malfunction	N	N	Y
NERC	7/20/2002 12:40	7.6	CECNY	NPCC	Consolidated Edison Company of New York	Y	Y	N	63,500	278	INT	Equipment failure	Y	Y	Y
NERC	7/26/2002 15:19	3.7	CE	Commonwealth Edison Company	MAIN	Y	Y	Y	0	N/A	UO	Equipment failure - fuel supply	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	7/27/2002 19:15	0.2	AZPS	WECC-AZNMSNV	Arizona Public Service Company	Y	N	N	1,000	15	INT	Weather - lightning	Y	Y	Y
NERC	7/29/2002 23:27	N/A	CECNY	NPCC	Reliant Resources and Consolidated Edison Company of New York	Y	Y	N	9,000	N/A	INT	Equipment failure	N	N	Y
NERC	7/30/2002 13:00	N/A	NYIS	NPCC	New York Independent System Operator	Y	Y	N	N/A	N/A	PA	Weather - heat and high demand	N	N	N
NERC	7/31/2002 13:17	0.3	BCHA	WECC-NWPP	British Columiba Hydro Power Authority	N	N	N	50,000	240	INT	Human error	Y	Y	Y
NERC	8/1/2002 14:00	58.0	CEC	ECAR	Consumers Energy Company	Y	Y	Y	114,500	100	INT	Weather - severe storms	Y	Y	Y
NERC	8/2/2002 3:45	0.2	HQT	NPCC-Quebec	Hydro-Quebec TransEnergie	N	Y	N	N/A	848	INT	Weather - lightning	Y	Y	Y
NERC	8/2/2002 9:47	N/A	EPE	WECC-AZNMSNV	El Paso Electric Company	Y	N	N	350,000	1,071	INT	Contractor accident	N	Y	Y
NERC	8/9/2002 8:23	3.8	LWU	FRCC	Lake Worth Utilities	Y	N	N	25,000	51	INT	Animal contact	Y	Y	Y
NERC	8/14/2002 16:31	0.2	HQT	NPCC-Quebec	Hydro-Quebec TransEnergie	N	Y	N	8	1,060	INT	Weather - lightning suspected	Y	Y	Y
NERC	8/26/2002 10:24	0.3	TEPC	WECC-AZNMSNV	Tucson Electric Power Company	Y	N	N	50,000	270	INT	Equipment failure	Y	Y	Y
NERC	8/28/2002 14:09	1.5	LWU	FRCC	Lake Worth Utilities	Y	N	N	25,000	68	INT	Weather - lightning	Y	Y	Y
NERC	9/3/2002 14:52	3.0	CISO	WECC-CAMX	California Independent System Operator	Y	Y	N	0	N/A	UO	Wild fires	N	N	Y
NERC	9/9/2002 17:09	0.3	IMO	NPCC-Ontario	Independent Electricity Market Operator	N	Y	N	0	400	VR	Weather - hot and humid	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	9/15/2002 18:10	14.2	MP	MAPP	Minnesota Power Company	Y	Y	Y	0	N/A	UO	Equipment malfunction	N	N	Y
NERC	9/26/2002 5:48	0.5	WECC_NW	WECC-NWPP	Western Electric Coordinating Council - NWPP	Y	N	N	0	N/A	UO	Insulator contamination	N	N	Y
NERC	10/3/2002 3:33	212.4	EES	SERC-Entergy	Entergy Corporation	Y	N	N	242,910	N/A	INT	Hurricane Lili	N	Y	N
NERC	10/3/2002 8:00	88.6	LAFA	SPP	Lafayette Utilities System	Y	Y	N	55,000	212	INT	Hurricane Lili	Y	Y	Y
NERC	10/3/2002 10:10	109.8	CLEC	SPP	Cleco Power, LLC	Y	Y	N	164,500	N/A	INT	Hurricane Lili	N	Y	Y
NERC	10/8/2002 15:31	N/A	BPAT	Bonneville Power Administration Transmission Services	WECC-NWPP	Y	Y	N	0	N/A	UO	Suspected human error & equipment failure	N	N	Y
NERC	10/21/2002 7:43	N/A	MHEB	MAPP-Canada	Manitoba Hydro Transmission Services	N	Y	Y	0	N/A	UO	Equipment failure	N	N	Y
NERC	10/31/2002 7:51	2.3	HQT	NPCC-Quebec	Hydro-Quebec TransEnergie	N	Y	N	0	250	UO	Equipment failure	Y	Y	Y
NERC	11/6/2002 22:00	74.0	CISO	WECC-CAMX	California Independent System Operator, Pacific Gas & Electric Co.	Y	Y	N	877,000	N/A	INT	Weather - heavy rain and wind	N	Y	Y
NERC	11/7/2002 6:34	6.7	HQT	NPCC-Quebec	Hydro-Quebec TransEnergie	N	Y	N	1	250	INT	Weather - snow and strong winds	Y	Y	Y
NERC	11/22/2002 11:01	0.0	HQT	NPCC-Quebec	Hydro-Quebec TransEnergie	N	Y	N	0	N/A	UO	Equipment failure and relay misoperation	N	N	Y
NERC	12/3/2002 18:30	148.0	EES	SERC-Entergy	Entergy Corporation	Y	N	N	43,000	N/A	INT	Weather - ice storm	N	Y	Y
NERC	12/4/2002 20:05	N/A	DUK	SERC-VACAR	Duke Energy Corporation	Y	N	N	1,140,000	7,200	INT	Weather - snow, sleet, ice	N	Y	N
NERC	12/5/2002 6:00	162.0	CPLE	SERC-VACAR	Carolina Power & Light Company	Y	Y	N	464,000	2,400	INT	Weather - snow, sleet, ice	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	12/11/2002 13:09	34.8	VAP	SERC-VACAR	Dominion Virginia Power	Y	Y	N	90,000	63	INT	Weather - freezing rains	Y	Y	Y
NERC	12/14/2002 11:00	101.0	CISO	WECC-CAMX	California Independent System Operator, Pacific Gas & Electric Co.	Y	Y	N	2,100,000	180	INT	Weather - heavy rains and winds	Y	Y	N
NERC	12/19/2002 6:00	35.0	CISO	WECC-CAMX	California Independent System Operator, Pacific Gas & Electric Co.	Y	Y	N	385,000	56	INT	Weather - heavy rains and winds	Y	Y	Y
NERC	12/25/2002 10:00	94.5	MET-ED	MAAC	Metropolitan Edison Company	Y	Y	N	95,630	N/A	INT	Weather - heavy snow	N	Y	Y
NERC	12/25/2002 17:00	79.0	PPL EU	MAAC	PPL Electric Utilities	Y	Y	N	166,000	250	INT	Weather - heavy snow	Y	Y	Y
NERC	12/26/2002 12:02	N/A	BCHA	WECC-NWPP	British Columbia Hydro Power Authority	N	N	N	0	862	INT	Weather - severe storm, ice	N	N	Y
NERC	1/3/2003 14:10	2.5	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Inadvertent trip	N	N	Y
NERC	1/18/2003 23:04	0.8	NWMT	NorthWestern Energy - Montana	WECC-NWPP	Y	N	N	0	N/A	UO	SPS Misoperation	N	N	Y
NERC	1/19/2003 0:12	0.1	NWMT	NorthWestern Energy - Montana	WECC-NWPP	Y	N	N	0	N/A	UO	SPS Misoperation	N	N	Y
NERC	1/24/2003 7:00	1.0	JEA	Jacksonville Electric Authority	FRCC	Y	N	N	N/A	N/A	VR	Cold weather	N	N	Y
NERC	2/3/2003 23:19	4.1	IMO	Independent Electricity Market Operator	NPCC-Ontario	N	Y	N	0	N/A	UO	Weather - Freezing rain and insulator contamination	N	N	Y
NERC	2/13/2003 11:08	6.4	PACE	PacifiCorp East	WECC-NWPP	Y	N	N	200,000	700	UO	Dump Truck contacting tower structure	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	2/23/2003 17:55	11.0	LDWP	Los Angeles Department of Water & Power	WECC-CAMX	Y	N	N	1	30	UO	Static wire down by airplane contact	Y	Y	Y
NERC	2/27/2003 11:32	92.5	DUK	Duke Energy Corporation	SERC-VACAR	Y	N	N	350,000	1,000	INT	Weather - Major ice storm	Y	Y	Y
NERC	3/2/2003 5:47	0.4	CFE	Comision Federal de Electricidad	WECC-CAMX	Y	Y	N	0	N/A	UO	Line fault	N	N	Y
NERC	3/7/2003 19:18	20.7	PNM	Public Service Company of New Mexico	WECC-AZNMSNV	Y	N	N	0	N/A	UO	Static wire down by airplane contact	N	N	Y
NERC	3/10/2003 23:23	0.4	CFE	Comision Federal de Electricidad	WECC-CAMX	Y	Y	N	0	N/A	INT	Line fault	N	N	Y
NERC	3/21/2003 18:38	23.0	CISO	California Independent System Operator, Southern California Edison Company	WECC-CAMX	Y	Y	N	1	300	UO	Transformer failure	Y	Y	Y
NERC	3/22/2003 6:50	2.4	BCHA	British Columbia Hydro & Power Authority	WECC-NWPP	N	N	N	135,000	1,080	INT	Line fault	Y	Y	Y
NERC	3/26/2003 9:19	1.5	PACW	PacifiCorp Western System	WECC-NWPP	Y	N	N	0	N/A	UO	Human error	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	4/4/2003 19:00	70.0	MECS	Consumers Energy	ECAR	Y	Y	Y	425,000	300	INT	Weather - severe ice storm	Y	Y	Y
NERC	4/7/2003 0:19	0.1	CISO	California Independent System Operator	WECC-CAMX	Y	Y	N	N/A	650	UO	Unknown	Y	Y	Y
NERC	4/15/2003 11:39	4.3	ERCO	ERCOT ISO, CenterPoint Energy, Bryan Texas Utilities	ERCOT	Y	Y	N	68,530	212	INT	Erroneous trip signal	Y	Y	Y
NERC	5/2/2003 17:00	19.0	DUK	Duke Energy Company	SERC-VACAR	Y	N	N	139,000	1,500	INT	severe weather	Y	Y	Y
NERC	5/3/2003 0:18	0.3	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	SPS Misoperation	N	N	Y
NERC	5/4/2003 23:32	15.8	TVA	Tennessee Valley Authority	SERC-TVA	Y	N	N	14,825	N/A	INT	Tornados	N	Y	Y
NERC	5/10/2003 21:53	N/A	CE	Commonwealth Edison	MAIN	Y	Y	N	N/A	N/A	UO	Tornado	N	N	N
NERC	5/11/2003 13:00	0.0	CE	Commonwealth Edison	MAIN	Y	Y	N	65,000	N/A	INT	Severe weather	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	5/15/2003 2:54	3.6	ERCO	ERCOT ISO	ERCOT	Y	Y	N	419,863	1,549	INT	Insulator failure, system protection failure	Y	Y	Y
NERC	5/15/2003 14:00	N/A	WEC	Wisconsin Electric Power Company	MAIN	Y	Y	Y	2	240	PA	Flooding	N	N	Y
NERC	5/29/2003 17:04	0.4	LDWP	Los Angeles Department of Water & Power, Bonneville Power Administration	WECC-CAMX	Y	N	N	0	N/A	UO	Equipment failure	N	N	Y
NERC	6/22/2003 23:44	0.3	MP	Minnesota Power Company	MAPP	Y	Y	Y	0	N/A	UO	Line fault and system protection misoperation	N	N	Y
NERC	6/24/2003 14:03	0.6	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	N/A	260	UO	Smoke contamination	Y	Y	Y
NERC	7/1/2003 15:15	0.3	AZPS	Arizona Public Service Company	WECC-AZNMSNV	Y	N	N	48,000	1,000	INT	Equipment failure	Y	Y	Y
NERC	7/17/2003 19:00	N/A	CE	Commonwealth Edison	MAIN	Y	Y	N	80,000	N/A	INT	Severe Weather	N	Y	Y
NERC	7/21/2003 17:15	30.7	PPL EU	PPL Electric Utilities	MAAC	Y	Y	N	185,000	1,000	INT	Severe weather	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	7/28/2003 18:54	1.7	AZPS	Arizona Public Service Company, Salt River Project	WECC-AZNMSNV	Y	N	N	90,000	440	INT	Human error	Y	Y	Y
NERC	7/30/2003 16:22	0.8	MP	Minnesota Power	MAIN	Y	Y	Y	N/A	N/A	UO	Lightning	N	N	Y
NERC	8/10/2003 14:09	744.2	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Weather - lightning	N	N	N
NERC	8/12/2003 20:31	1.0	BCHA	British Columbia Hydro and Power Authority	WECC-NWPP	N	N	N	7,400	465	INT	Equipment failure	Y	Y	Y
NERC	8/13/2003 22:55	N/A	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Unknown	N	N	Y
NERC	8/14/2003 15:00	74.0	MISO	Midwest ISO	Multiple Regions	Y	Y	Y	N/A	18,500	INT	Major blackout	Y	N	Y
NERC	8/14/2003 16:09	38.8	MECS	Detroit Edison	ECAR	Y	Y	Y	2,100,000	11,000	INT	Major blackout	Y	N	N
NERC	8/14/2003 16:09	44.9	MECS	Consumers Power	ECAR	Y	Y	Y	101,000	1,007	INT	Major blackout	Y	N	Y
NERC	8/14/2003 16:10	13.8	PJM	PJM Interconnection, LLC	MAAC	Y	Y	N	N/A	4,100	INT	Major blackout	Y	N	Y
NERC	8/14/2003 15:11	N/A	IMO	Independent Electricity Market Operator	NPCC-Ontario	N	Y	N	11,000,000	20,867	INT	Major blackout	N	N	N
NERC	8/14/2003 16:10	31.8	FE	FirstEnergy Corp.	ECAR	Y	Y	Y	1,203,000	7,000	INT	Major blackout	Y	N	N

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	8/14/2003 16:10	N/A	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	N/A	100	INT	Major blackout	N	N	N
NERC	8/14/2003 16:10	35.6	ISNE	ISO New England	NPCC-ISO-NE	Y	Y	N	2,500	2,500	INT	Major blackout	Y	N	Y
NERC	8/14/2003 16:11	28.9	NYIS	Consolated Edison Company of N.Y.	NPCC-NYISO	Y	Y	N	3,125,350	11,202	INT	Major blackout	Y	N	N
NERC	8/14/2003 17:10	1.2	NBPwr	New Brunswick Power	NPCC-Maritimes	N	Y	N	0	N/A	INT	Major blackout	N	N	Y
NERC	8/16/2003 12:00	9.0	NYIS	Consolidated Edison Company of New York	SERC-Entergy	Y	N	N	N/A	N/A	PA	Insufficient capacity	N	N	Y
NERC	8/17/2003 19:48	1.4	EES	Entergy Energy Services	SPP	Y	N	N	65,000	500	INT	Equipment failure	Y	Y	Y
NERC	8/26/2003 21:26	0.2	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	9/4/2003 13:53	0.0	HQT	Hydro-Quebec-TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Unknown	N	N	Y
NERC	9/15/2003 1:32	0.3	PJM	PECO, Baltimore Gas and Electric	MAAC	Y	Y	N	45,000	400	UO	Weather - lightning, relay misoperation	Y	Y	Y
NERC	9/18/2003 8:20	374.7	VAP	Dominion - Virginia Power, North Carolina Power	SERC-VACAR	Y	Y	N	1,800,000	6,512	INT	Hurricane Isabel	Y	Y	N
NERC	9/18/2003 11:45	96.2	CPLE	Carolina Power & Light (Progress Energy)	SERC-VACAR	Y	N	N	320,000	1,655	INT	Hurricane Isabel	Y	Y	Y
NERC	9/18/2003 12:00	132.0	PJM	Conectiv Power Delivery	MAAC	Y	Y	N	120,000	600	INT	Hurricane Isabel	Y	Y	Y
NERC	9/18/2003 21:00	99.0	PPL EU	PPL EU	MAAC	Y	Y	N	350,000	1,300	INT	Hurricane Isabel	Y	Y	Y
NERC	9/28/2003 23:58	88.0	NSPwr	Nova Scotia Power	NPCC-Maritimes	N	Y	N	300,000	412	INT	Hurricane Juan	Y	Y	Y
NERC	10/9/2003 14:52	0.6	NWMT	North Western Energy	WECC-NWPP	Y	N	N	0	N/A	UO	Cause unknown	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	10/26/2003 1:44	0.3	SDGE	San Diego Gas & Electric Co.	WECC-CAMX	Y	Y	N	90,000	N/A	INT	Brush fires	N	Y	Y
NERC	11/13/2003 7:30	23.0	NYIS	Niagara Mohawk	NPCC-NYISO	Y	Y	N	50,280	180	INT	Weather - high winds	Y	Y	Y
NERC	11/13/2003 13:40	26.0	VAP	Dominion - Virginia Power and North Carolina Power	SERC	Y	Y	N	67,000	300	INT	Weather - high winds	Y	Y	Y
NERC	12/1/2003 18:21	1.8	ISNE	ISO-New England	NPCC-ISO-NE	Y	Y	N	300,000	630	INT	Off-normal operation	Y	Y	Y
NERC	12/4/2003	96.0	PSEI	Puget Sound Energy	WECC-NWPP	Y	N	N	175,000	175	INT	Weather - high winds	Y	Y	Y
NERC	12/4/2003 22:15	4.8	WEC	Wisconsin Electric Power Company	MAIN	Y	Y	Y	36,000	500	INT	Cause unknown	Y	Y	Y
NERC	12/5/2003 4:49	0.4	HST	City of Homestead	FRCC	Y	N	N	16,500	27	INT	Equipment failure and system protection misoperation	Y	Y	Y
NERC	12/22/2003 7:05	11.1	IMO	The IMO	NPCC-Ontario	N	Y	N	0	N/A	UO	Equipment failure	N	N	Y
NERC	12/23/2003 21:08	1.0	PJM	FirstEnergy - Jersey Central P&L	MAAC	Y	Y	N	80,000	N/A	UO	Human error	N	N	Y
NERC	12/26/2003 1:12	5.8	HQT	HydroQuebec TransEnergie	NPCC-HQ	N	N	N	10	630	INT	Weather	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	1/8/2004 15:00	52.0	NYIS	Niagara Mohawk, National Grid - New York	NPCC-NYISO	Y	Y	N	18,600	100	PA	Public Appeal	N	N	Y
NERC	1/11/2004 8:46	1.5	WACM	Western Area Power Administration, Loveland; Tri-State Generation and Transmission; PacifiCorp, Public Service Company of Colorado, Platte River Power Authority, and Cheyenne Light, Fuel and Power	WECC-RMPA	Y	N	N	N/A	96	UO	System Protection malfunction	Y	Y	Y
NERC	1/23/2004 15:00	45.0	NYIS	Niagara Mohawk, National Grid USA	NPCC-NYISO	Y	Y	N	18,600	100	PA	Public Appeal	N	N	Y
NERC	1/26/2004 7:30	3.0	NYIS	Niagara Mohawk, National Grid USA	NPCC-NYISO	Y	Y	N	18,600	100	VR	Voltage Reduction	N	N	Y
NERC	1/26/2004 10:00	98.0	SCEG	South Carolina Electric and Gas	SERC	Y	N	N	150,000	700	INT	Weather - ice storm	Y	Y	Y
NERC	1/26/2004 14:00	34.0	SC	Soutnern Company	SERC-Southern	Y	N	N	30,689	150	INT	Weather - ice storm	Y	Y	Y
NERC	1/26/2004 16:00	80.0	SCEG	Progress Energy - Carolinas, Carolina Power & Light	SERC	Y	N	N	92,000	475	INT	Weather - ice storm	Y	Y	Y
NERC	1/28/2004 13:09	0.1	PJM	PJM Interconnection, LLC	MAAC	Y	Y	N	65,000	300	INT	Weather - icing	Y	Y	Y
NERC	2/14/2004 20:00	40.0	NYIS	Niagara Mohawk - National Grid U.S.	NPCC-NYISO	Y	Y	N	18,600	30	PA	Public Appeal	N	N	Y
NERC	2/26/2004 0:00	1.5	SOCO	Southern Company	SERC-Southern	Y	N	N	61,284	10	INT	Weather - high winds and thunder	Y	Y	Y
NERC	2/26/2004 23:22	9.2	AESO	Alberta Electric Sysetm Operator	WECC-NWPP	N	Y	N	N/A	180	UO	Weather - Fog and hoarfrost	Y	Y	Y
NERC	3/4/2004 15:06	2.2	ERCO	ERCOT ISO	ERCOT	Y	Y	N	41,000	300	INT	Weather - high winds, possible tornado	Y	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	3/8/2004 17:50	0.8	CISO	California ISO, Southern California Edison Company	WECC-CAMX	Y	Y	N	70,000	300	INT	Human Error	Y	Y	Y
NERC	3/17/2004 13:27	0.7	EPE	El Paso Electric Company	WECC-AZNMSNV	Y	N	N	100,000	300	INT	Equipment failure	Y	Y	Y
NERC	3/18/2004 9:18	4.1	BCTC	British Columbia Transmission Corporation	WECC-NWPP	N	N	N	74,000	78	INT	Equipment failure	Y	Y	Y
NERC	3/23/2004 17:37	1.8	WACM	Tri-State Generation and Transmission Assocation, Western Area Power Administration - CM	WECC-RMPA	Y	N	N	N/A	135	INT	Misoperation	Y	Y	Y
NERC	4/2/2004 13:17	3.9	PJM	PJM Interconnection, LLC, OVEC and AEP	ECAR	Y	Y	N	0	N/A	UO	Third party contact	N	N	Y
NERC	4/11/2004 11:49	1.0	EES	Entergy	SERC-Entergy	Y	N	N	0	N/A	UO	Computer trouble	N	N	Y
NERC	4/12/2004 5:30	42.5	FPL	Florida Power and Light	FRCC	Y	N	N	179,000	250	INT	Weather - high winds and lightning	Y	Y	Y
NERC	4/28/2004 9:27	1.0	NBPwr	New Brunswick Power, Maritime Electric Company Ltd.	NPCC-Maritimes	N	Y	N	97,500	245	INT	Conductor sagging	Y	Y	Y
NERC	5/17/2004 9:39	0.9	HQT	HydroQuebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	INT	Inadvertant tripping	N	N	Y
NERC	5/19/2004 12:01	0.1	HQT	HydroQuebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	INT	System Protection	N	N	Y

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NERC	5/22/2004 18:57	14.3	NPPD	Nebraska Public Power District	MAPP	Y	Y	Y	N/A	40	INT	Severe weather - thunderstorm and tornados	Y	Y	Y
NERC	5/28/2004 12:00	84.0	SEC	Seminole Electric Coorperative, Inc.	FRCC	Y	N	N	50,000	N/A	PA	Inadequate resources	N	N	Y
NERC	5/28/2004 16:21	0.2	SC	Southern Company	SERC-Southern	Y	N	N	0	N/A	UO	Cyber attack	N	N	Y
NERC	6/1/2004 17:00	91.0	ERCO	TXU Electric Delivery	ERCOT	Y	Y	N	500,000	1,900	INT	Weather - severe lightning and high winds	Y	Y	Y
NERC	6/12/2004 17:37	0.1	LES	Lincoln Electric System	MAPP	Y	Y	Y	120,212	428	INT	Weather	Y	Y	Y
NERC	6/14/2004 7:41	0.8	AZPS	Arizona Pulic Service Company, Salt River Project, Western Area Power Administration - DSW Area, AESO, Tucson Electric Power, Public Service of New Mexico, California Independent System Operator	WECC-AZNMSNV	Y	N	N	41,000	492	INT	Equipment failure, system protection malfunction	Y	Y	Y
NERC	6/23/2004 17:35	1.6	IPCO	Idaho Power Company	WECC-RMPA	Y	N	N	35,000	157	UO	Unknown	Y	Y	Y
NERC	6/23/2004 19:00	1.0	SOCO	Southern Company	SERC-Southern	Y	N	N	50,595	50	INT	Weather - Severe thunder storm	Y	Y	Y
NERC	7/4/2004 18:59	0.8	AZPS	Arizona Public Service Company	WECC-AZNMSNV	Y	N	N	0	N/A	UO	Equipment failure	N	N	Y

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NERC	7/5/2004 17:18	0.6	HQT	Hydro-Quebec Transenergie	NPCC-Quebec	N	N	N	175,000	1,778	UO	Maintenance error	Y	Y	Y
NERC	7/7/2004 13:30	21.2	VAP	Dominion - Virginia Power and North Carolina Power	SERC-VACAR	Y	Y	N	8,110	120	INT	Weather - severe thunderstorms	Y	Y	Y
NERC	7/13/2004 14:05	3.2	TAL	City of Tallahassee	FRCC	Y	N	N	42,122	283	INT	System Protection	Y	Y	Y
NERC	7/20/2004 2:30	6.8	AZPS	Arizona Public Service Company	WECC-AZNMSNV	Y	N	N	50,000	250	INT	Equipment failure	Y	Y	Y
NERC	7/21/2004 17:30	25.5	CE	Commonwealth Edison	MAIN	Y	Y	N	200,000	200	INT	Severe weather - thunderstorm and high winds	Y	Y	Y
NERC	7/24/2004 15:45	30.2	EES	Entergy Transmission company	SERC-Entergy	Y	N	N	N/A	N/A	PA	Public Apeal	N	N	Y
NERC	7/25/2004 22:00	1.0	SOCO	Southern Company	SERC-Southern	Y	N	N	61,004	61	INT	Weather	Y	Y	Y
NERC	8/1/2004 11:00	9.0	EES	Entergy Transmission, GSU - Texas	SPP	Y	N	N	0	N/A	PA	Public appeal	N	N	Y
NERC	8/2/2004 10:00	12.0	EES	Entergy Energy Services and GSU Texas	SPP	Y	N	N	0	N/A	PA	Public appeals	N	N	Y
NERC	8/3/2004 10:00	N/A	Ees	Entergy Energy Services and GSU - Texas	SPP	Y	N	N	0	N/A	PA	Public appeal	N	N	Y
NERC	8/4/2004 12:46	1.1	CISO	California ISO, Southern California Edison	WECC-CAMX	Y	Y	N	171,600	480	INT	Equipment faliure	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	8/10/2004 14:20	3.9	WALC	Western Area Power Administration - Lower Colorado, Arizona Public Service, and Salt River Project	WECC-AZNMSNV	Y	N	N	3	40	UO	Brush Fire	Y	Y	Y
NERC	8/13/2004 13:30	N/A	SEC	Seminole Electric Cooperative, Inc.	FRCC	Y	N	N	200,000	700	INT	Severe weather - hurricane Charley	N	Y	Y
NERC	8/13/2004 15:00	249.0	FPL	Florida Power & Light	FRCC	Y	N	N	400,000	1,400	INT	Severe weather - Hurricane Charley	Y	Y	N
NERC	8/14/2004 13:00	58.0	CPLE	Progress Energy - Carolinas, Carolina Power and Light	SERC-VACAR	Y	N	N	94,000	500	INT	Severe weather - hurrican Charley	Y	Y	Y
NERC	8/18/2004 9:59	0.1	ERCO	TXU Electric Delivery	ERCOT	Y	Y	N	2	178	UO	Human error	Y	Y	Y
NERC	8/20/2004 15:27	8.5	ISNE	ISO New England	NPCC-ISO-NE	Y	Y	N	27,388	N/A	VR	Weather - lightning	N	N	Y
NERC	8/29/2004 9:52	62.1	SCEG	South Carolina Electric and Gas Company	SERC	Y	N	N	125,000	450	INT	Weather - Tropical Storm Gaston	Y	Y	Y
NERC	8/30/2004 5:43	4.9	AESO	Alberta Electric System Operator (AESO)	WECC-NWPP	N	Y	N	0	N/A	UO	Maintenance error	N	N	Y
NERC	8/30/2004 18:58	52.0	VAP	Dominion - Virginia Power, North Carolina Power	SERC-VACAR	Y	Y	N	99,816	150	INT	Weather - Tropical Storm Gaston	Y	Y	Y
NERC	9/4/2004 8:00	352.0	FPL	Florida Power and Light Company	FRCC	Y	N	N	1,807,881	6,000	INT	Weather - Hurricane Frances	Y	Y	N
NERC	9/6/2004 13:00	71.0	SOCO	Southern Company	SERC-Southern	Y	N	N	556,383	3,000	INT	Weather - Hurricane Frances	Y	Y	Y
NERC	9/15/2004 19:00	48.0	SOCO	Southern Company	SERC-Southern	Y	N	N	1,536,433	1,364	INT	Severe Weather - Hurricane Ivan	Y	Y	N

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	9/16/2004 2:00	108.7	AEC	Alabama Electric Cooperative, Inc.	SERC	Y	N	N	75,000	263	INT	Weather - Hurricane Ivan	Y	Y	Y
NERC	9/18/2004 5:30	98.5	CPLE	Progress Energy - Carolinas (Carolina Power and Light)	SERC	Y	N	N	112,000	400	INT	Severe weather - Hurricane Ivan	Y	Y	Y
NERC	9/25/2004 19:00	404.0	FPL	Florida Power and Light	FRCC	Y	N	N	1,700,000	6,000	INT	Severe Weather - Hurricane Jeanne	Y	Y	N
NERC	9/27/2004 8:00	6.0	SOCO	Southern Company	SERC-Southern	Y	N	N	85,455	854	INT	Severe weather - Hurricane Jeanne	Y	Y	Y
NERC	10/17/2004 13:40	3.0	PACE	PacifiCorp, Western Area Power Administration - CM	WECC-RMPA	Y	N	N	0	N/A	UO	System Protection malfunction	N	N	Y
NERC	10/25/2004 11:00	9.0	EES	Entergy Transmission Services	SERC-Entergy	Y	N	N	0	N/A	PA	Public Appeal	N	N	Y
NERC	10/30/2004 10:00	61.0	MECS	Consumers Energy	ECAR	Y	Y	Y	117,842	60	INT	Weather - high winds	Y	Y	Y
NERC	11/5/2004 2:41	1.5	EES	Entergy Energy Services	SERC-Entergy	Y	N	N	0	N/A	UO	EMS Computer failure	N	N	Y
NERC	11/7/2004 20:17	1.0	MHEB	Manitoba Hydro Electric Board	MAPP-Canada	Y	Y	Y	0	N/A	UO	SPS misoperation	N	N	Y
NERC	11/12/2004	27.5	CIN	Cinergy	ECAR	Y	Y	Y	0	N/A	UO	EMS computer failure	N	N	Y
NERC	11/14/2004 2:00	0.4	NSPwr	Novia Scotia Power, Inc. and New Brunswick Power	NPCC-Maritimes	N	Y	N	132,000	600	INT	Weather - severe snow storm	Y	Y	Y
NERC	11/20/2004 7:05	0.3	EES	Entery Energy Services	SPP	Y	N	N	0	N/A	UO	EMS Computer Failure	N	N	Y
NERC	11/23/2004 11:20	0.3	BCTC	British Columbia Transmission Company	WECC-NWPP	N	N	N	88,775	370	UO	Equipment failure	Y	Y	Y

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NERC	11/24/2004 10:00	6.0	SOCO	Southern Company	SERC-Southern	Y	N	N	83,450	100	INT	Severe weather - thunder storms	Y	Y	Y
NERC	11/30/2004 14:33	3.0	AZPS	Arizona Public Service	WECC-AZNMSNV	Y	N	N	0	N/A	UO	Maintenance Error	N	N	Y
NERC	1/18/2005 13:25	0.1	MHEB	Manitoba Hydro	MAPP-Canada	Y	Y	Y	0	N/A	UO	SPS misoperation	N	N	Y
NERC	1/29/2005 10:00	62.0	SOCO	Southern Company	SERC-Southern	Y	N	N	150,000	100	INT	Weather - severe winter storm	Y	Y	Y
NERC	3/8/2005 11:00	19.0	CPLE	Progress Energy - Carolinas (Carolina Power and Light Company)	SERC	Y	N	N	51,600	180	INT	Severe weather - wind storm	Y	Y	Y
NERC	3/8/2005 15:55	1.5	PACW	PacifiCorp	WECC-NWPP	Y	N	N	0	N/A	UO	Unknown	N	N	Y
NERC	3/17/2005 20:02	1.0	ISNE	ISO New England	NPCC-ISO-NE	Y	Y	N	0	N/A	INT	Equipment failure	N	N	Y
NERC	4/2/2005 12:11	4.1	PACW	PacifiCorp, Western Area Power Administration, RM	WECC-RMPA	Y	N	N	0	N/A	INT	Equipment Overload	N	N	Y
NERC	4/20/2005 14:08	1.0	SMUD	Sacramento Municipal Utility District	WECC-CAMX	Y	N	N	48,000	200	INT	Human error	Y	Y	Y
NERC	4/21/2005 21:29	0.4	SMUD	Sacramento Municipal Utility District	WECC-CAMX	Y	N	N	48,000	168	INT	Human error	Y	Y	Y
NERC	4/22/2005 14:14	0.2	SMUD	Sacramento Municipal Utility District	WECC-CAMX	Y	N	N	69,979	127	INT	RTU malfunction	Y	Y	Y
NERC	4/30/2005 8:00	2.0	SOCO	Southern Company	SERC-Southern	Y	N	N	51,808	100	INT	Weather - severe thunder storm	Y	Y	Y
NERC	5/8/2005 15:00	50.0	ERCO	CenterPoint Energy - Houston Electric	ERCOT	Y	Y	N	243,000	672	INT	Severe weather - thunderstorms	Y	Y	Y
NERC	5/19/2005 8:07	0.2	BPAT	Bonneville Power Administration	WECC-NWPP	Y	N	N	0	N/A	INT	Lightning	N	N	Y

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NERC	5/19/2005 13:47	0.2	BPAT	Bonneville Power Administration	WECC-NWPP	Y	N	N	0	N/A	INT	Lightning	N	N	Y
NERC	5/25/2005 14:17	0.1	HQT	Hydro-Quebec - TransEnergie	NPCC-HQ	N	N	N	0	N/A	UO	System Protection	N	N	Y
NERC	5/27/2005 15:15	1.1	IESO	Independent Electric System Operator, Independent Electricity Market Operator	NPCC-Ontario	N	Y	N	N/A	2,300	INT	Human Error	Y	Y	Y
NERC	5/29/2005 20:00	45.0	ERCO	CenterPoint Energy - Houston Electric	ERCOT	Y	Y	N	123,000	328	INT	Weather - severe thunderstorms	Y	Y	Y
NERC	5/30/2005 13:54	N/A	CFE	Comision Federal de Electricidad	WECC-CAMX	Y	Y	N	N/A	53	INT	Unknown	N	Y	N
NERC	5/31/2005 16:09	0.2	BPAT	Bonneville Power Administration	WECC-NWPP	Y	N	N	0	N/A	INT	Weather - Lightning	N	N	Y
NERC	6/1/2005 13:36	0.1	BPAT	Bonneville Power Administration	WECC-NWPP	Y	N	N	0	N/A	INT	Damage Insulators	N	N	Y
NERC	6/2/2005 13:10	5.3	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	415,000	1,500	INT	Forrest fires	Y	Y	Y
NERC	6/6/2005 12:07	0.0	HQT	Hydro-Quebe - TransEnergie	NPCC-HQ	N	N	N	0	N/A	UO	Weather - Severe Lightning	N	N	Y
NERC	6/7/2005 18:01	1.0	NBPwr	New Brunswick System Operator, Inc.	NPCC-Maritimes	N	Y	N	2	14	INT	Weather - lightning storm	Y	Y	Y
NERC	6/13/2005 10:04	2.8	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Equipment Failure	N	N	Y

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NERC	6/14/2005 14:15	0.5	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Telecommunications failure	N	N	Y
NERC	6/15/2005 18:55	4.6	EES	Entery Energy Services - Transmission	SPP	Y	N	N	150,000	1,100	INT	Weather - high winds	Y	Y	Y
NERC	6/19/2005 7:10	6.8	MHEB	Manitoba Hydro	MAPP-Canada	Y	Y	Y	15,000	N/A	INT	Weather - tornado	N	N	Y
NERC	6/21/2005 10:04	0.1	BPAT	Bonneville Power Administration	WECC-NWPP	Y	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	6/21/2005 20:02	0.3	SCL	Seattle City Light	WECC-NWPP	Y	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	6/21/2005 22:45	N/A	AESO	Alberta Electric System Operator	WECC-NWPP	N	Y	N	N/A	200	INT	Weather - severe winds and lightning	N	N	N
NERC	6/23/2005 1:18	0.1	HQT	Hydro-Quebec TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Unknown	N	N	Y
NERC	6/24/2005 20:37	2.5	CE	Commonwealth Edison Company	MAIN	Y	Y	N	51,500	350	INT	Equipment failure	Y	Y	Y
NERC	6/28/2005 12:45	N/A	PSCO	Public Service Company of Colorado	WECC-RMPA	Y	N	N	0	N/A	UO	Fuel supply problems	N	N	Y
NERC	7/1/2005 13:13	3.4	ERCO	ERCOT ISO, TXU ED	ERCOT	Y	Y	N	N/A	100	INT	Unknown	Y	Y	Y
NERC	7/9/2005 10:21	1.1	PACE	PacifiCorp East	WECC-RMPA	Y	N	N	18,600	150	Int	Equipment failure	Y	Y	Y

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NERC	7/10/2005 8:00	N/A	SOCO	Southern Company	SERC-Southern	Y	N	N	66,830	45	INT	Weather - Hurricane Denis	N	Y	Y
NERC	7/10/2005 12:53	28.0	AEC	Alabama Electric Coop, Inc.	SERC	Y	N	N	50,000	51	INT	Weather - Hurricane Dennis	Y	Y	Y
NERC	7/11/2005 15:33	0.1	HQT	HydroQuebec - TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Equipment failure	N	N	Y
NERC	7/17/2005 13:16	0.7	HQT	HydroQuebe - TransEnergie	NPCC-Quebec	N	N	N	361,166	1,173	UO	Human error	Y	Y	Y
NERC	7/19/2005 12:50	0.3	BPAT	Bonneville Power Administration	WECC-NWPP	Y	N	N	0	N/A	UO	Human Error	N	N	Y
NERC	7/19/2005 14:06	1.7	HQT	HydroQuebe - TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	7/28/2005 20:30	92.5	DUK	Duke Energy Company	SERC	Y	N	N	52,200	300	INT	Weather - severe thunderstorm	Y	Y	Y
NERC	8/1/2005 23:07	0.6	HQT	HydroQuebec - TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	8/9/2005 17:36	0.2	HQT	HydroQuebe-TransEnergie	NPCC-Quebec	N	N	N	0	N/A	UO	Weather - severe lightning storm	N	N	Y
NERC	8/25/2005 15:47	1.3	LDWP	California ISO, Southern California Edison, Los Angeles Dept. of Water and Power, PacifiCorp West, Bonneville Power Administration	WECC-CAMX	Y	Y	N	N/A	1,700	INT	Equipment failure	Y	Y	Y

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NERC	8/26/2005 2:10	12.8	HST	City of Homestead	FRCC	Y	N	N	17,500	38	INT	Weather - Hurricane Katrina	Y	Y	Y
NERC	8/29/2005 1:10	1,001.3	LGEE	Louisiana Generating LLC	SPP	Y	Y	N	143,000	300	INT	Weather - Hurricane Katrina	Y	Y	N
NERC	8/29/2005 6:45	675.2	CLEC	Cleco Power, LLC	SERC	Y	Y	N	50,800	380	INT	Weather - Hurricane Katrina	Y	Y	N
NERC	8/29/2005 7:10	14.8	SOCO	Southern Company	SERC-Southern	Y	N	N	897,257	8,972	INT	Weather - Hurricane Katrina	Y	Y	Y
NERC	9/10/2005 21:46	0.5	AESO	Alberta Electric System Operator	WECC-NWPP	N	Y	N	8,000	8	UO	Weather - high winds and snow	Y	Y	Y
NERC	9/12/2005 12:32	3.4	BURB	Burbank Water & Power, Los Angeles Department of Water & Power	WECC-CAMX	Y	N	N	50,686	172	INT	Human Error	Y	Y	Y
NERC	9/12/2005 12:32	1.7	GLEN	City of Glendale, Los Angeles Department of Water & Power	WECC-CAMX	Y	N	N	63,000	130	INT	Human error	Y	Y	Y

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NERC	9/12/2005 12:32	1.4	LDWP	Los Angeles Department of Water and Power, Southern California Edison, and the City of Glendale	WECC-CAMX	Y	N	N	900,000	2,200	INT	Human Error	Y	Y	Y
NERC	9/13/2005 18:30	77.5	WEC	Wisconsin Energies	MAIN	Y	Y	Y	110,000	600	INT	Weather - severewinds	Y	Y	Y
NERC	9/14/2005 15:00	24.0	CPLE	Progress Energy - Carolinas (CP&L)	SERC	Y	N	N	60,000	215	INT	Weather - Hurricane Ophelia	Y	Y	Y
NERC	9/20/2005 15:51	0.1	BCTC	British Columbia Transmission Corporation	WECC-NWPP	Y	N	N	0	N/A	UO	Weather - lightning	N	N	Y
NERC	9/21/2005 8:33	0.3	BCTC	British Columbia Transmission Corportation	WECC-NWPP	Y	N	N	0	N/A	UO	Human error	N	N	Y
NERC	9/22/2005 12:00	N/A	PEF	Progress Energy - Florida	FRCC	Y	N	N	0	N/A	PA	Public appeal	N	N	Y
NERC	9/23/2005 13:06	313.5	LAGN	Louisiana Generating, LLC	SERC	Y	N	N	125,000	350	INT	Weather - Hurricane Rita	Y	Y	N
NERC	9/23/2005 17:00	14.5	ERCO	CenterPoint Energy	ERCOT	Y	Y	N	715,000	1,950	INT	Weather - Hurricane Rita	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	9/23/2005 21:00	891.0	EES	Entergy Corporation	SERC-Entergy	Y	N	N	787,774	N/A	INT	Weather - Hurricane Rita	N	Y	N
NERC	9/24/2005 6:00	N/A	CLEC	Cleco Power, LLC	SERC	Y	Y	N	80,000	N/A	INT	Weather - Hurricane Rita	N	Y	Y
NERC	9/24/2005 6:00	203.0	ERCO	TXU Electric Delivery Company	ERCOT	Y	Y	N	100,000	260	INT	Weather - Hurricane Rita	Y	Y	N
NERC	10/23/2005 23:00	18.0	FPL	Florida Power and Light	FRCC	Y	N	N	3,200,000	10,000	INT	Weather - Hurricane Wilma	Y	Y	N
NERC	10/24/2005 4:11	0.2	HST	City of Homestead	FRCC	Y	N	N	17,500	33	INT	Weather - Hurricane Wilma	Y	Y	Y
NERC	10/25/2005 18:05	2.4	ISNE	ISO-New England and Hydro-Quebec TransEnergie	NPCC-ISO-NE	Y	Y	N	0	N/A	UO	Equipment failure	N	N	Y
NERC	11/2/2005 18:43	1.1	BCTC	British Columbia Transmission Corporation	WECC-NWPP	N	N	N	2,700	350	INT	Weather - lightning	Y	Y	Y
NERC	11/25/2005 18:01	0.3	AESO	Alberta Electric System Operator, British Columbia Transmission Company	WECC-NWPP	N	Y	N	N/A	375	INT	Weather - heavy wet snow and freezing rain	Y	Y	Y
NERC	12/15/2005 4:00	157.0	DUK	Duke Power	SERC	Y	N	N	600,000	3,000	INT	Weather - ice storm	Y	Y	Y
NERC	12/15/2005 5:05	31.1	SOCO	Southern Company	SERC-Southern	Y	N	N	52,659	75	INT	Weather 0 ice storm	Y	Y	Y
NERC	12/15/2005 11:00	4.0	GSOC	Georgia System Operations Corporation	SERC	Y	N	N	52,000	200	INT	Weather - oce storm	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	12/18/2005 15:15	7.8	CISO	Pacific Gas and Electric Company	WECC-CAMX	Y	Y	N	60,000	N/A	INT	Weather - high winds and rain	N	Y	Y
NERC	12/31/2005 6:00	156.0	CISO	Pacific Gas and Electric Company - Northern and Central California	WECC-CAMX	Y	Y	N	1,667,316	800	UO	Weather - High Winds, Rain	Y	Y	N
NERC	1/14/2006 15:45	49.7	PJM	PECO Energy	RFC	Y	Y	N	155,879	N/A	INT	Weather - High Winds	N	Y	Y
NERC	1/18/2006 3:00	44.8	PJM	PECO Energy	RFC	Y	Y	N	72,535	N/A	INT	Weather - High Winds	N	Y	Y
NERC	1/21/2006 21:42	N/A	PNM	Public Service Company of New Mexico	WECC-AZNMSNV	Y	N	N	2,110	3	INT	Vandalism - Transmission Cable Tampering	N	Y	Y
NERC	1/24/2006 16:00	1.0	CISO	Pacific Gas & Electric	WECC-CAMX	Y	Y	N	N/A	N/A	UO	Vandalism - Stray Gunshot	N	N	Y
NERC	1/28/2006 6:13	1.0	CISO	Pacific Gas & Electric	WECC-CAMX	Y	Y	N	76,000	N/A	INT	Equipment Failure - Transformer Failure	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	2/4/2006 1:34	46.5	BPAT	Snohomish County PUD #1, Snohomish County, Washington	WECC-RMPA	Y	N	N	123,827	150	UO	Weather - Wind Storm	Y	Y	Y
NERC	2/4/2006 4:30	66.5	PSEI	Puget Sound Energy, Western Washington Puget Sound Region	WECC-RMPA	Y	N	N	140,000	N/A	UO	Weather - Wind Storm	N	Y	Y
NERC	2/5/2006 4:19	1.3	EES	Entergy Corporation	SERC-Entergy	Y	N	N	N/A	N/A	UO	Cyber - Hard Drive Equipment Failure	N	N	Y
NERC	2/8/2006 3:42	2.8	TPWR	Tacoma Power - City of Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Intrusion, Possible Arson	N	N	Y
NERC	2/15/2006 9:00	0.0	WAUE	Missouri Basin Power Project, Laramie River Station - Basin Electric Power Cooperative (Operator)	MRO	Y	Y	Y	N/A	1,650	UO	Fuel - RR Delivery Problems	Y	Y	Y
NERC	2/18/2006 4:50	N/A	PJM	Potoamc Electric Power Co; Washington, DC and Vicinity	RFC	Y	Y	N	N/A	N/A	UO	Surveillance - Telephone, War Dialing	N	N	N
NERC	2/18/2006 8:50	1.5	PSCO	Public Service Company of Colorado (PSC)	WECC-RMPA	Y	N	N	323,000	428	INT	Fuel - Natural Gas Supply and Pressure Limitations	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	2/24/2006 9:00	0.0	PNM	Public Service Company of New Mexico, Albuquerque	WECC-AZNMSNV	Y	N	N	N/A	N/A	UO	Vandalism - Copper Theft	N	N	Y
NERC	2/27/2006 18:25	46.1	CISO	Pacific Gas & Electric Company; Northern and Central California	WECC-CAMX	Y	Y	N	160,000	N/A	UO	Weather - High Winds, Rain	N	Y	Y
NERC	3/3/2006 13:38	0.9	BCTC	British Columbia Transmission Company (BCTC), Alberta Electric System Operator (AESO)	WECC-NWPP	Y	N	N	N/A	N/A	VR	Human Error - Voltage Reduction	N	N	Y
NERC	3/9/2006 14:00	28.0	EES	Entergy Corporation	SERC-Entergy	Y	N	N	73,000	N/A	UO	Weather - Thunderstorms	N	Y	Y
NERC	3/12/2006 20:30	39.5	CWLP	City Water, Light & Power, Sprinfield IL	FRO	Y	Y	Y	69,000	200	UO	Weather - Tornado	Y	Y	Y
NERC	3/16/2006 17:00	4.0	CISO	Pacific Gas & Electric - San Jose area	WECC-CAMX	Y	Y	N	N/A	N/A	UO	Surveillance - Physical	N	N	Y
NERC	3/17/2006 21:08	N/A	AESO	Alberta Electric System Operator (AESO)	WECC-NWPP	N	Y	N	N/A	650	UO	Weather - Ice Fog	N	Y	N
NERC	3/18/2006 15:29	46.0	LDWP	Los Angeles Department of Water and Power, PacifiCorp East	WECC-CAMX	Y	N	N	N/A	N/A	UO	Equipment Failure - Fire	N	N	Y
NERC	3/20/2006 7:55	0.1	TPWR	Tacoma Power - City of Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Intrusion, Lock Broken	N	N	Y
NERC	4/8/2006 4:00	32.0	SOCO	Southern Company North and Central Alabama and Northern Georgia Areas	SERC-Southern	Y	N	N	115,589	300	INT	Weather - Tornados, Thunderstorms	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	4/14/2006 11:12	70.9	PNM	Public Service Company of New Mexico	WECC-AZNMSNV	Y	N	N	N/A	N/A	UO	Surveillance - Email	N	N	Y
NERC	4/17/2006 15:25	4.6	ERCO	Electric Reliability Council of Texas (ERCOT)	ERCOT	Y	Y	N	200,000	1,000	INT	Weather - High Temperatures, Limited Resources	Y	N	Y
NERC	4/17/2006 16:10	2.0	ERCO	CenterPoint Energy System-wide greater Houston Metro area (and across ERCOT)	ERCOT	Y	Y	N	68,000	260	INT	Weather - High Temperatures, Limited Resources	Y	N	Y
NERC	4/17/2006 16:10	3.2	ERCO	TXU Energy Delivery North and East Texas	ERCOT	Y	Y	N	489,478	380	INT	Weather - High Temperatures, Limited Resources	Y	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	4/17/2006 16:12	2.0	ERCO	Lower Colorado River Authority, State of Texas (Central Texas)	ERCOT	Y	Y	N	N/A	N/A	INT	Weather - High Temperatures, Limited Resources	N	N	Y
NERC	4/17/2006 16:20	2.2	ERCO	Austin Energy	ERCOT	Y	Y	N	8,000	40	INT	Weather - High Temperatures, Limited Resources	Y	N	Y
NERC	4/17/2006 16:35	2.4	ERCO	American Electric Power Texas Central/Texas North	ERCOT	Y	Y	N	51,404	58	INT	Weather - High Temperatures, Limited Resources	Y	N	Y
NERC	4/24/2006 16:45	N/A	TPWR	Tacoma Power - City of Tacoma, Cowlitz Substation / Southeast Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	N/A	Vandalism - Copper Theft	N	N	N
NERC	5/1/2006 13:00	N/A	PACW	PacifiCorp``	WECC-NWPP	Y	N	N	N/A	N/A	N/A	Vandalism - Copper Theft	N	N	N

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	5/2/2006 12:31	0.5	BPAT	Bonneville Power Administration, Los Angeles Department of Water and Power	WECC-CAMX	Y	Y	N	N/A	N/A	UO	Equipment Failure - Transmission Line Fault	N	N	Y
NERC	5/3/2006 15:30	3.7	CISO	Pacific Gas & Electric - City of Bakersfield area	WECC-CAMX	Y	Y	N	55,655	300	UO	Equipment Failure - Transformer Failure	Y	Y	Y
NERC	5/4/2006 19:36	0.9	EES	Entergy Corporation	SERC-Entergy	Y	N	N	N/A	N/A	UO	EMS Computer Failure - Hard Drive	N	N	Y
NERC	5/12/2006 10:35	26.3	ISNE	Bangor Hydro-Electric Company Northern Maine and the Maritimes	NPCC-ISO-NE	Y	Y	N	N/A	N/A	UO	Vandalism - Copper Theft	N	N	Y
NERC	5/19/2006 17:05	0.2	SOCO	Southern Company	SERC-Southern	Y	N	N	N/A	N/A	UO	Surveillance - Telephone	N	N	Y
NERC	5/25/2006 19:50	1,489.2	CIN	CINERGY-Duke Energy Ohio	RFC	Y	Y	Y	112,000	800	UO	Weather - High Winds, Storms, Lightning	Y	Y	N
NERC	6/1/2006 16:39	3.4	VAP	Dominion – Virginia Power / North Carolina Power	SERC	Y	Y	N	N/A	N/A	UO	Cyber - Unknown	N	N	Y
NERC	6/1/2006 18:00	39.0	PJM	PECO Energy	RFC	Y	Y	N	111,555	N/A	UO	Weather - Thunderstorms, Lightning	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	6/4/2006 12:34	3.4	WACM	Platte River Power Authority Tri-State Generation and Transmission Association	WECC-PMPA	Y	N	N	31,076	130	UO	Equipment Failure - Transmission Line Fault	Y	Y	Y
NERC	6/4/2006 12:34	0.7	WACM	Western Area Power Administration	WECC-PMPA	Y	N	N	N/A	N/A	VR	Equipment Failure - Transmission Line Fault	N	N	Y
NERC	6/8/2006 16:00	0.5	TPWR	Tacoma Power - City of Tacoma, Cowlitz Substation / Southeast Tacoma	WECC-NWPP	Y	N	N	N/a	N/A	UO	Vandalism - Intrusion	N	N	Y
NERC	6/13/2006 12:00	N/A	PNM	Public Service Company of New Mexico	WECC-AZNMSNV	Y	N	N	N/A	N/A	UO	Surveillance - Physical	N	N	N
NERC	6/14/2006 8:51	1.9	EES	Entergy Corporation	SERC-Entergy	Y	N	N	1,081	7	UO	Vandalism - Copper Theft	Y	Y	Y
NERC	6/14/2006 21:45	0.8	AESO	Alberta Electric System Operator (AESO) British Columbia Transmission Company (BCTC)	WECC-NWPP	N	Y	N	N/A	N/A	UO	Weather - Lightning - Islanding	N	N	Y
NERC	6/26/2006 19:37	1.0	ISNE	ISO-New England	NPCC-ISO-NE	Y	Y	N	30,000	115	UO	Equipment Failure - Lightning Arrestor	Y	Y	Y
NERC	6/30/2006 9:02	0.0	CISO	Pacific Gas & Electric	WECC-CAMX	Y	Y	N	N/A	N/A	UO	Humon Error - Technical Error	N	N	Y
NERC	6/30/2006 13:08	212.9	TVA	Tennessee Valley Authority	SERC-TVA	Y	N	N	N/A	N/A	UO	Sabotage - Substation	N	N	N
NERC	7/2/2006 12:00	7.1	EES	Entergy Corporation	SERC-Entergy	Y	N	N	N/A	N/A	UO	Weather - Lightning	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	7/4/2006 3:47	0.2	AESO	Alberta Electric System Operator (AESO) British Columbia Transmission Company (BCTC)	WECC-NWPP	N	Y	N	N/A	N/A	UO	Weather - Lightning - Islanding	N	N	Y
NERC	7/4/2006 17:30	2.8	VAP	Dominion - Virginia Power/North Carolina Power	SERC	Y	Y	N	67,000	335	UO	Weather - Thunderstorms	Y	Y	Y
NERC	7/5/2006 9:00	27.0	TPWR	Tacoma Power - City of Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Copper Theft	N	N	Y
NERC	7/5/2006 23:30	0.2	AESO	Alberta Electric System Operator (AESO) British Columbia Transmission Company (BCTC)	WECC-NWPP	N	Y	N	N/A	N/A	UO	Weather - Lightning - Islanding	N	N	Y
NERC	7/5/2006 23:30	0.2	BCTC	British Columbia Transmission Company (BCTC), Alberta Electric System Operator (AESO)	WECC-NWPP	Y	N	N	N/A	N/A	UO	Weather - Lightning - Islanding	N	N	Y
NERC	7/18/2006 12:10	52.3	TPWR	Tacoma Power - City of Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Copper Theft	N	N	Y
NERC	7/18/2006 19:00	N/A	PJM	PECO Energy	RFC	Y	Y	N	380,000	N/A	UO	Weather - High Winds, Storms	N	Y	Y
NERC	7/18/2006 20:07	2.4	ISNE	ISO-New England Norwalk Stamford Connecticut	NPCC-ISO-NE	Y	Y	N	N/A	N/A	UO	CORRECTION-/NONE INCIDENT	N	N	Y
NERC	7/19/2006 11:00	6.9	EES	Entergy Corporation Greater Little Rock, AR Area within Entergy Arkansas Grid	SERC-Entergy	Y	N	N	8,000	40	PA	Equipment Failure - Transformer Failure	N	N	Y
NERC	7/19/2006 19:00	278.0	AMRN	Ameren Corp., St Lousi, MO area	SERC	Y	Y	Y	600,000	1,500	UO	Weather - Thunderstorms, Lightning	Y	Y	N
NERC	7/22/2006 13:09	122.8	CISO	Pacific Gas & Electric	WECC-CAMX	Y	Y	N	1,271,893	200	PA	Weather - High Temperatures	N	Y	N

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	7/24/2006 14:33	6.5	CISO	California Independent System Operator (CAISO),PG&E, SCE, and SDG&E	WECC-CAMX	Y	Y	N	N/A	855	PA	Weather - High Temperatures	N	Y	Y
NERC	7/24/2006 14:33	6.0	CISO	Southern California Edison Company (SCE)	WECC-CAMX	Y	Y	N	N/A	N/A	PA	Weather - High Temperatures	N	N	Y
NERC	7/24/2006 15:28	0.4	BCTC	British Columbia Transmission Corporation (BCTC), Alberta Electric System Operator (AESO)	WECC-NWPP	N	N	N	0	650	UO	Weather - Lightning - Islanding	Y	Y	Y
NERC	7/24/2006 15:28	N/A	BPAT	Bonneville Power Administration	WECC-CAMX	Y	Y	N	N/A	N/A	UO	Equipment Failure - Transmission Line Fault	N	N	N
NERC	7/25/2006 16:12	0.2	AESO	Alberta Electric System Operator	WECC-NWPP	N	Y	N	N/A	N/A	UO	Weather - Lightning - Islanding	N	N	Y
NERC	7/27/2006 19:00	76.0	PJM	PECO Energy: Chester, Montgomery, Delaware, Philadelphia, and Bucks County	RFC	Y	Y	N	175,000	N/A	UO	Weather - Thunderstorms	N	Y	Y
NERC	8/1/2006 10:47	6.7	MISO	Midwest ISO's East and Central Regions: ALTE, AMRN, CIN, CILC, CWLD, CWLP, FE, HE, IP, IPL, LGEE, MECS, MGE, NIPS, SIGE, SIPC, UPPC, WEC, WPS	MRO	Y	Y	Y	N/A	N/A	PA	PA - Weather, High Temperatures	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	8/1/2006 12:00	7.0	MISO	First Energy Corp., Northern Ohio	MRO	Y	Y	Y	N/A	N/A	PA	PA - Weather, High Temperatures	N	N	Y
NERC	8/2/2006 12:00	4.7	MISO	Midwest ISO's Market sub-region: AMRN, CIN, CILC, CWLD, CWLP, FE, HE, IP, IPL, LGEE, MECS, NIPS, SIGE, SIPC.	MRO	Y	Y	Y	N/A	N/A	PA	PA - Weather, High Temperatures	N	N	Y
NERC	8/2/2006 13:00	5.0	ISNE	New England area utilities, ISO-New England	NPCC-ISO-NE	Y	Y	N	N/A	N/A	VR	Weather - High Temperatures, Humidity	N	N	Y
NERC	8/3/2006 1:10	0.0	ISNE	New England,area utilities, ISO-New England	NPCC-ISO-NE	Y	Y	N	11,000	40	UO	Equipment Failure - Transmission, Vegetation	Y	Y	Y
NERC	8/10/2006 15:48	8.6	AESO	Alberta Electric System Operator (AESO)	WECC-NWPP	N	Y	N	N/A	N/A	UO	Weather - Lightning - Islanding	N	N	Y
NERC	8/19/2006 11:10	0.0	HQT	Hydro-Quebec, TransEnergie	NPCC-Quebec	N	N	N	N/A	N/A	UO	Human Error - Misoperation	N	N	Y
NERC	8/23/2006 9:30	2.8	CISO	Pacific Gas & Electric	WECC-CAMX	Y	Y	N	8,000	N/A	UO	Vandalism - Intrusion	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	8/28/2006 9:00	N/A	TPWR	Tacoma Power - City of Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Copper Theft	N	N	N
NERC	9/1/2006 5:30	50.5	CPLE	Progress Energy Carolinas, Inc.; Eastern North Carolina	SERC-VACAR	Y	N	N	61,000	N/A	UO	Weather - Tropical Storm Ernesto	N	Y	Y
NERC	9/1/2006 6:41	64.3	VAP	Dominion – Virginia Power / North Carolina Power; Virginia and North Carolina	SERC-VACAR	Y	Y	N	150,520	225	UO	Weather - Tropical Storm Ernesto	Y	Y	Y
NERC	9/5/2006 9:45	6.8	TPWR	Tasoma Power - City of Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Copper Theft	N	N	Y
NERC	9/5/2006 12:15	4.3	TPWR	Tacoma Power - City of Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Copper Theft	N	N	Y
NERC	9/5/2006 13:30	3.0	TPWR	Tacoma Power - City of Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Copper Theft	N	N	Y
NERC	9/15/2006 17:45	3.7	FPL	City of Lake Worth Utilities	FRCC	Y	N	N	26,894	81	UO	Weather - Lightning Storm	Y	Y	Y
NERC	9/16/2006 19:20	1.7	TPWR	Tacoma Power - City of Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Copper Theft	N	N	Y
NERC	9/21/2006 19:14	2.0	SOCO	Southern Company	SERC-Southern	Y	N	N	4,165	11	UO	Vandalism - Substation/Physical Damage	Y	Y	Y
NERC	9/25/2006 8:30	5.0	TPWR	Tacoma Power - City of Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Break-In	N	N	Y
NERC	9/28/2006 15:08	0.7	ERCO	Electric Reliability Council of Texas (ERCOT)	ERCOT	Y	Y	N	2	N/a	INT	Special Protection	N	N	Y
NERC	10/2/2006 14:00	81.0	CE	Commonwealth Edison - ELONinion – Virginia Power / North Carolina Power	RFC	Y	Y	N	269,322	N/A	UO	Weather - Thunderstorms	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	10/2/2006 15:05	5.6	CISO	Southern California Edison Company (SCE)	WECC-CAMX	Y	Y	N	130,000	308	UO	Equipment Failure - Breaker	Y	Y	Y
NERC	10/3/2006 17:28	4.5	ERCO	Electric Reliability Council of Texas (ERCOT)	ERCOT	Y	Y	N	100,308	185	UO	Equipment Failure - CCVT	Y	Y	Y
NERC	10/12/2006 17:48	258.2	ISNE	Niagara Mohawk Power Corporation (dba National Grid)	NPCC-ISO-NE	Y	Y	N	180,000	400	UO	Weather - Snow Storm	Y	Y	N
NERC	10/14/2006 23:25	3.5	PACW	PacificCorp	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Bomb Threat	N	N	Y
NERC	10/15/2006 7:09	19.8	NONE	Hawaiian Electric Company	NONE	N	N	N	291	1,170	UO	Earthquake	Y	N	Y
NERC	10/20/2006 13:00	10.0	PJM	PECO Energy	RFC	Y	Y	N	92,300	N/A	UO	Weather - Wind Storm and Rain	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	10/28/2006 9:00	1.0	TPWR	Tacoma Power - City of Tacoma	WECC-NWPP	Y	N	N	N/A	N/A	UO	Suspicious Surveillance Activities	N	N	Y
NERC	10/29/2006 10:53	2.3	NBSC	New Brunswick System Operator	NPCC-Maritimes	N	Y	N	N/A	N/A	UO	Human Error - Misoperation	N	N	Y
NERC	11/15/2006 13:00	24.0	PESI	Puget Sound Energy, Western Washington Puget Sound Region	WECC-RMPA	Y	N	N	50,000	50	UO	Weather - Wind Storm and Rain	Y	Y	Y
NERC	11/15/2006 15:00	2.0	SOCO	Southern Company	SERC-Southern	Y	N	N	109,000	363	UO	Weather - Wind Storm and Rain	Y	Y	Y
NERC	11/22/2006 7:00	4.0	SMUD	Sacramento Municipal Utility District	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Sabotage - Copper Theft	N	N	Y
NERC	11/30/2006 22:00	212.0	AMRN	Ameren Corp., St Lousi, MO area	SERC	Y	Y	Y	550,000	N/A	UO	Weather - Snow Storm and Ice Storm	N	Y	N
NERC	12/9/2006 21:56	0.9	PACW	PacificCorp	WECC-NWPP	Y	N	N	N/A	N/A	UO	Vandalism - Bomb Threat	N	N	Y
NERC	12/13/2006 4:30	317.0	PESI	Puget Sound Energy, Western Washington Puget Sound Region	WECC-RMPA	Y	N	N	700,000	N/A	UO	Weather - Wind Storm and Rain	N	Y	N

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	12/14/2006 9:44	413.0	BPAT	Bonneville Power Administration	WECC-RMPA	Y	N	N	15	133	UO	Weather - Wind Storm and Rain	Y	Y	N
NERC	12/14/2006 12:07	11.9	PACW	PacificCorp	WECC-NWPP	Y	N	N	77,500	N/A	UO	Weather - Wind Storm and Rain	N	Y	Y
NERC	12/14/2006 17:00	119.0	TPWR	Tacoma Power - City of Tacoma	WECC-NWPP	Y	N	N	75,000	280	UO	Weather - Wind Storm and Rain	Y	Y	Y
NERC	12/14/2006 19:00	36.0	CISO	Pacific Gas and Electric Company	WECC-CAMX	Y	Y	N	249,500	N/A	UO	Weather - Wind Storm and Rain	N	Y	Y
NERC	12/15/2006 0:01	120.0	PESI	Seattle City Light	WECC-RMPA	Y	N	N	170,000	750	UO	Weather - Wind Storm and Rain	Y	Y	Y
NERC	12/16/2006 16:30	8.5	CISO	Pacific Gas and Electric Company	WECC-CAMX	Y	Y	N	50,000	350	UO	Equipment Failure - Transformer	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	12/22/2006 15:25	N/A	ERCO	Electric Reliability Council of Texas (ERCOT) - Tenaska Power Services Co.	ERCOT	Y	Y	N	N/A	3,175	UO	Equipment Failure - Transformer	N	Y	N
NERC	12/26/2006 0:01	271.0	CISO	Pacific Gas and Electric Company	WECC-CAMX	Y	Y	N	850,000	420	UO	Weather - Wind Storm and Rain	Y	Y	N
NERC	12/30/2006 22:25	N/A	NPPD	Nebraska Public Power District	MRO	Y	Y	Y	15,000	500	UO	Weather - Snow Storm and Ice Storm	N	Y	Y
NERC	1/13/2007 5:00	163.0	AMRN	Ameren Corp., St Lousi, MO area, States of Missouri and Illinois	SERC	Y	Y	Y	225,000	N/A	INT	Weather - Snow, Freezing Rain	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	1/23/2007 13:46	3.2	BCTC	British Columbia Transmission Company (BCTC)	WECC-NWPP	N	N	N	100,000	1,000	INT	Human Error - Substation, Result: Islanding	Y	Y	Y
NERC	1/30/2007 6:23	6.4	IESO	Independent Electricity Market Operator (IMO)	NPCC-Ontario	N	Y	N	N/A	N/A	UO	Equipment Failure - Capacitor Explosion	N	N	Y
NERC	2/15/2007 16:54	0.0	DUK	Duke Energy - Carolinas BA	SERC-VACAR	Y	N	N	N/A	N/A	UO	System Protection - Relay Misoperation	N	N	Y
NERC	2/16/2007 6:46	3.9	PACE	PacifiCorp	WECC-RMPA	Y	N	N	3,261	20	INT	System Protection - Relay Misoperation	Y	Y	Y
NERC	2/24/2007 16:00	164.0	MISO	MidAmerican Energy Company; NE quarter of Iowa and Rock Island, IL area	MRO	Y	Y	Y	75,000	210	INT	Weather - Ice Storm	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	2/24/2007 18:00	5.8	MISO	Alliant Energy	MRO	Y	Y	Y	140,000	400	INT	Weather - Ice Storm	Y	Y	Y
NERC	2/28/2007 0:45	68.0	PACE	Pacific Gas & Electric, Northern CA	WECC-RMPA	Y	Y	N	671,189	110	INT	Weather - Snow and Rain	Y	Y	Y
NERC	3/1/2007 9:40	37.3	EES	Entergy	SERC-Entergy	Y	N	N	60,408	200	INT	Weather - Storms	Y	Y	Y
NERC	3/1/2007 21:40	25.3	SOCO	Southern Company Parts of Al, Ms,Ga, Fl	SERC-Southern	Y	N	N	60,408	N/A	INT	Weather - Tornadoes-Rain	N	Y	Y
NERC	4/5/2007 9:20	27.8	ISNE	ISO-New England; Maine, Central Maine Power	NPCC-ISO-NE	Y	Y	N	117,142	N/A	INT	Weather - Snow Storm	N	Y	Y
NERC	4/5/2007 13:00	N/A	ISNE	ISO-New England; New Hampshire, PS of NH	NPCC-ISO-NE	Y	Y	N	53,000	N/A	INT	Weather - Snow Storm	N	Y	Y
NERC	4/12/2007 12:32	59.5	CISO	LADWP, City of Los Angeles, California	WECC-CAMX	Y	N	N	158,977	200	DR	Weather - Wind	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	4/14/2007 9:00	2.0	ISNE	National Grid New England Control Center / REMVEC	NPCC-ISO-NE	Y	Y	N	70,000	65	INT	Weather - Wind and Rain	Y	Y	Y
NERC	4/16/2007 8:00	81.0	DUK	Duke Energy Carolinas, Piedmont amd Mountains of NC and SC	SERC-VACAR	Y	N	N	125,000	N/A	INT	Weather - Wind and Rain	N	Y	Y
NERC	4/16/2007 10:00	12.0	ISNE	ISO-New England, New Hampshire	NPCC-ISO-NE	Y	Y	N	81,000	N/A	INT	Weather - Wind and Rain	N	Y	Y
NERC	4/16/2007 10:14	60.1	ISNE	ISO-New England, Central Maine Power	NPCC-ISO-NE	Y	Y	N	127,545	N/A	INT	Weather - Wind and Rain	N	Y	Y
NERC	4/16/2007 11:00	8.0	CPLE	Progress Energy Service Territory in North and South Carolina	SERC-VACAR	Y	N	N	60,000	N/A	INT	Weather - Wind and Rain	N	Y	Y
NERC	4/16/2007 14:00	1.0	PJM	Baltimore Gas & Electric	RFC	Y	Y	N	56,000	N/A	INT	Weather - Wind and Rain	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	4/16/2007 14:00	51.0	PJM	BGE-Constellation Energy Group, Central Maryland, Baltimore City and surrounding counties	RFC	Y	Y	N	56,000	160	INT	Weather - Wind and Rain	Y	Y	Y
NERC	4/16/2007 14:04	55.9	VAP	Dominion, North, East, & central Va. / parts of N.E–N.C.	SERC-VACAR	Y	Y	N	242,000	90	DR	Weather - Wind and Rain	N	Y	Y
NERC	5/5/2007 10:56	N/A	IPCO	Idaho Area	WECC-RMPA	Y	N	N	N/A	240	UO	Human Error	N	N	N
NERC	5/10/2007 9:57	3.8	PGE	Crockett CoGeneration	WECC-NWPP	Y	Y	N	1	N/A	INT	Equipment Failure	N	N	Y
NERC	5/14/2007 11:15	2.6	PGE	Crockette Cogeneration	WECC-NWPP	Y	Y	N	1	N/A	INT	Equipment Failure	N	N	Y
NERC	5/15/2007 15:00	40.0	MECS	DTE Service Area	RFC	Y	Y	Y	66,000	500	INT	Weather - High Wind Gusts and Rain	Y	Y	Y
NERC	5/16/2007 18:00	60.0	ISNE	CT Area	NPCC-ISO-NE	Y	Y	N	67,000	N/A	INT	Weather - High Wind Gusts and Rain	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	5/21/2007 13:48	3.0	PGE	Crockette Cogeneration	WECC-NWPP	Y	Y	N	1	N/A	INT	Human Error	N	N	Y
NERC	5/23/2007 18:08	2.0	BPAT	Northwest USA	WECC-NWPP	Y	N	N	N/A	N/A	UO	Equipment Failure	N	N	Y
NERC	6/7/2007 12:47	0.5	BPAT	BPA Service Area	WECC-NWPP	Y	N	N	N/A	N/A	UO	Human Error	N	N	Y
NERC	6/12/2007 12:42	0.7	IESO	Ontario CA Area	NPCC-Ontario	N	Y	N	N/A	N/A	VR	Voltage Reduction - Weather - Hot	N	N	Y
NERC	6/26/2007 15:42	0.8	NYIS	NY State	NPCC-NYISO	Y	Y	N	N/A	460	UO	Weather – Lightening Strike	Y	Y	Y
NERC	6/27/2007 15:54	49.3	BCTC	BC Province	WECC-NWPP	N	N	N	N/A	140	UO	Weather - Lightening Suspected	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	6/28/2007 17:18	72.7	BPAT	Northwest USA	WECC-NWPP	Y	N	N	N/A	N/A	UO	Equipment Failure - NON-Transmission System	N	N	Y
NERC	6/29/2007 9:23	0.8	SRP	Phoenix Area	WECC-AZNMSNV	Y	N	N	98,700	399	INT	Equipment Failure - EMS Load Shedding Tool	Y	Y	Y
NERC	7/3/2007 10:59	7.0	CISO	CAISO Controlled Grid	WECC-CAMX	Y	Y	N	N/A	N/A	PA	Public Appeal - Weather	N	N	Y
NERC	7/6/2007 17:18	1.0	PACW	Southern Idaho, Easter Oregon	WECC-NWPP	Y	N	N	N/A	60	UO	Weather – Storm and Fires	Y	Y	Y
NERC	7/7/2007 19:00	12.0	MECS	Southeasterm MI	RFC	Y	Y	Y	69,000	N/A	INT	Weather – Storm	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	7/10/2007 11:00	43.0	NYIS	Eastern NY	NPCC-NYISO	Y	Y	N	300,000	650	INT	Weather – Firm Load Shed	Y	Y	Y
NERC	7/15/2007 19:28	N/A	TVA	Western portion of TVA service area	SERC-TVA	Y	N	N	N/A	N/A	UO	Equipment Failure	N	N	N
NERC	7/16/2007 16:17	3.0	PACW	Utah Area	WECC-NWPP	Y	N	N	N/A	306	UO	Natural Disaster – Fires	Y	Y	Y
NERC	7/17/2007 18:00	8.0	CE	EXELON Corp West-ComEd	RFC	Y	Y	N	90,000	300	INT	Weather - Thunderstorms and High Wind	Y	Y	Y
NERC	7/19/2007 15:00	80.5	MECS	Southwestern Region of DTE Service Territory	RFC	Y	Y	Y	60,000	N/A	INT	Weather - Thunderstorms and High Wind	N	Y	Y
NERC	7/19/2007 15:50	6.4	VAP	Dominion–Virginia Power/North Carolina Power	SERC-VACAR	Y	Y	N	107,000	72	INT	Weather - Thunderstorms and High Wind	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	7/31/2007	N/A	CISO	N/A	WECC-CAMX	Y	Y	N	N/A	N/A	UO	Equipment Failure	N	N	N
NERC	8/4/2007 5:43	12.0	AEP	RFC West to MISO East	RFC	Y	Y	N	N/A	N/A	UO	Equipment Failure	N	N	Y
NERC	8/8/2007 13:00	8.0	CPLE	Portions of NC and SC	SERC-VACAR	Y	N	N	N/A	N/A	PA	Public Appeal - Weather - Hot	N	N	Y
NERC	8/8/2007 15:56	4.1	PJM	Mid-Atlantic Region of PJM	RFC	Y	Y	N	N/A	N/A	VR	Voltage Reduction	N	N	Y
NERC	8/9/2007 12:45	8.3	CPLE	Portions of NC and SC	SERC-VACAR	Y	N	N	N/A	N/A	PA	Public Appeal - Weather - Hot	N	N	Y
NERC	8/10/2007 12:20	8.7	CPLE	Portions of NC and SC	SERC-VACAR	Y	N	N	N/A	N/A	PA	Public Appeal - Weather - Hot	N	N	Y
NERC	8/13/2007 1:30	34.5	AMRN	State of MO	SERC	Y	Y	Y	63,000	N/A	INT	Weather - Severe Storm - High Winds	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	8/13/2007 18:11	2.8	CISO	Shasta, CA	WECC-CAMX	Y	Y	N	N/A	N/A	UO	Human Error	N	N	Y
NERC	8/14/2007 14:00	4.0	ERCO	CSWS area of SPP	ERCOT	Y	Y	N	5	N/A	INT	Weather - Shed Interruptible Load	N	N	Y
NERC	8/18/2007 4:08	0.2	AZPS	Arizona PS	WECC-AZNMSNV	Y	N	N	N/A	N/A	UO	Equipment Failure - Relay Setting	N	N	Y
NERC	8/19/2007 23:34	1.6	VAP	Central and Eastern VA	SERC-VACAR	Y	Y	N	58,500	100	INT	Weather - Storm - Rain - High Wind Gusts	Y	Y	Y
NERC	8/23/2007 16:00	20.0	CE	Commenwealth Edison Area	RFC	Y	Y	N	300,000	N/A	INT	Weather - Storm - Rain - High Wind Gusts	N	Y	Y
NERC	8/24/2007 20:27	0.9	AESO	Alberta Province Area	WECC-NWPP	N	Y	N	N/A	N/A	UO	Animal Contact	N	N	Y
NERC	8/25/2007 10:58	N/A	DUK	Generation Station	SERC-VACAR	Y	N	N	N/A	N/A	UO	Equipment Failure - Relay	N	N	N
NERC	8/25/2007 18:00	60.5	MECS	Southeastern MI	RFC	Y	Y	Y	75,000	N/A	INT	Weather - Storm - Rain - High Wind Gusts	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	8/29/2007 13:53	1.1	CISO	City of Modesto	WECC-CAMX	Y	N	N	26,000	180	INT	Animal Contact - VEGETATION	Y	Y	Y
NERC	8/29/2007 16:00	26.0	CISO	Southern California	WECC-CAMX	Y	Y	N	N/A	N/A	PA	Public Appeal - Weather- Hot	N	N	Y
NERC	8/31/2007 12:45	7.3	CISO	CAISO Area	WECC-CAMX	Y	Y	N	N/A	N/A	PA	Public Appeal - Weather- Hot	N	N	Y
NERC	9/3/2007 12:30	5.0	SDGE	San Diego Area	WECC-CAMX	Y	Y	N	N/A	N/A	PA	Weather – High Temperatures & Humidity	N	N	Y
NERC	9/4/2007 8:30	7.0	SDGE	San Diego Area	WECC-CAMX	Y	Y	N	N/A	N/A	PA	Weather – High Temperatures & Humidity	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	9/5/2007 7:53	5.3	ERCO	Central Texas	ERCOT	Y	Y	N	N/A	N/A	UO	Equipment Failure-Relay	N	N	Y
NERC	9/13/2007 4:00	27.0	EES	State of LA Area	SPP	Y	N	N	118,000	N/A	INT	Weather – Hurricane Humberto	N	Y	Y
NERC	9/15/2007 18:17	0.3	HQT	Hydro-Quebec Transenergie	NPCC-HQ	N	N	N	N/A	N/A	UO	Equipment Failure - Fire	N	N	Y
NERC	9/17/2007 19:01	0.8	IPL	Crawfordsville, IN	RFC	Y	Y	Y	9,600	50	INT	Equipment Failure - Relay	Y	Y	Y
NERC	9/18/2007 5:20	0.2	MISO	MN, ND, MB - NSP	MRO	Y	Y	Y	6,000	4,700	INT	Electrical System Separation – Islanding	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	9/18/2007 5:15	1.3	MISO	MN, ND, MA - Great Rivers	MRO	Y	Y	Y	11,175	8,000	INT	Electrical System Separation – Islanding	Y	Y	Y
NERC	9/18/2007 5:15	0.9	MISO	MN, ND, MB - MISO	MRO	Y	Y	Y	n/a	N/A	INT	Electrical System Separation – Islanding	N	N	Y
NERC	9/18/2007 5:21	0.8	MISO	MN, ND, MB - SASK Power	MRO	Y	Y	Y	n/a	896	INT	Electrical System Separation – Islanding	Y	Y	Y
NERC	9/24/2007 13:38	3.4	MECS	Southwest Michigan	RFC	Y	Y	Y	N/A	N/A	UO	Equipment Failure – Condensate Vacuum	N	N	Y
NERC	10/3/2007 16:35	0.7	HQT	Quebec Area	NPCC-HQ	N	Y	N	N/A	N/A	UO	Human Error - Line Load Limit Exceeded	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	10/7/2007 12:35	4.4	CISO	Portola, CA	WECC-CAMX	Y	Y	N	2,500	10	INT	Distribution Transformer Failure - Sguirrel	Y	Y	Y
NERC	10/10/2007 14:28	2.5	CISO	Portola, CA	WECC-CAMX	Y	Y	N	7,500	15	INT	Weather - High Wind Gusts	Y	Y	Y
NERC	10/15/2007 3:14	1.6	PACE	PACE Area	WECC-RMPA	Y	N	N	N/A	N/A	UO	Off-Normal Operation – Specific Cause Being Investigated	N	N	Y
NERC	10/18/2007 15:00	21.0	PSEI	Western WA Area	WECC-NWPP	Y	N	N	160,000	N/A	INT	Weather - High Wind Gusts	N	Y	Y
NERC	10/22/2007 14:01	0.4	CISO	SCE -- LA Area of CA	WECC-CAMX	Y	Y	N	90,323	451	INT	Fires - Brush Fires	Y	Y	Y
NERC	10/24/2007 9:45	N/A	CISO	Southern CA	WECC-CAMX	Y	Y	N	N/A	N/A	PA	Public Appeal - Conservation	N	N	N

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	10/24/2007 12:45	0.2	CISO	Southern CA	WECC-CAMX	Y	Y	N	N/A	N/A	PA	Public Appeal - Conservation	N	N	Y
NERC	10/26/2007 14:06	N/A	CISO	San Diego G&E	WECC-CAMX	Y	Y	N	N/A	200	UO	Fires - Brush Fires - Firm Load Shed	N	Y	N
NERC	10/26/2007 6:45	3.8	CISO	Southern CA Breaker	WECC-CAMX	Y	Y	N	N/A	280	UO	Equipment Failure – Breaker	Y	Y	Y
NERC	10/26/2007 14:01	0.4	CISO	City of Riverside	WECC-CAMX	Y	N	N	90,323	240	INT	Fires - Line Load Limits Exceeded	Y	Y	Y
NERC	11/3/2007 18:00	24.0	ISNE	Eastern MA, RI, Cape Cod	NPCC-ISO-NE	Y	Y	N	170,000	100	INT	Weather - Tropical Storm Noel	Y	Y	Y
NERC	11/4/2007 9:31	2.2	HQT	Hydro-Quebec Transenergie Area	NPCC-HQ	N	N	N	20,000	1,039	INT	Weather - Tropical Storm Noel	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	11/11/2007 18:00	20.0	BCTC	BC Province Area	WECC-NWPP	Y	N	N	244,000	N/A	INT	SPS Failure - Update Error	N	Y	Y
NERC	11/12/2007 6:30	12.5	BPAT	Oregon, WA , BC-CA	WECC-NWPP	Y	N	N	100,000	N/A	INT	Weather - High Wind Gusts - Rain	N	Y	Y
NERC	11/16/2007 14:55	0.2	ISNE	MA Area	NPCC-ISO-NE	Y	Y	N	N/A	N/A	UO	Equipment Failure - Static Wire	N	N	Y
NERC	11/27/2007 3:38	85.4	PACE	PacifiCorp Area	WECC-RMPA	Y	N	N	N/A	N/A	UO	Animal Contact - Bird Droppings	N	N	Y
NERC	11/30/2007 23:49	89.2	PACE	PacifiCorp Area	WECC-RMPA	Y	N	N	N/A	N/A	UO	Animal Contact - Bird Droppings	N	N	Y
NERC	12/1/2007 0:30	N/A	CISO	western Oregon and southwest Washington coastal areas	WECC-CAMX	Y	Y	N	40,454	N/A	INT	Weather - Wind and Rain Storm	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	12/2/2007 10:00	225.5	BPAT	Pacifci Northwest Area	WECC-NWPP	Y	N	N	33,000	125	INT	Weather - Wind and Rain Storm	Y	Y	N
NERC	12/2/2007 11:00	3.2	ISNE	New England Area	NPCC-ISO-NE	Y	Y	N	N/A	N/A	UO	Fuel Supply Problems - Gas Supply Interruption	N	N	Y
NERC	12/3/2007 7:22	8.6	SPA	Mid Atlantic/ VA area	SERC-VACAR	Y	Y	N	N/A	N/A	UO	Equipment Failure - Switch	N	N	Y
NERC	12/10/2007 3:08	220.9	OKGE	Tulsa, OK	SPP	Y	Y	N	256,663	800	INT	Weather - Ice Storm	Y	Y	N
NERC	12/10/2007 9:12	3.3	ISNE	New England Area	NPCC-ISO-NE	Y	Y	N	N/A	N/A	UO	Equipment Failure - Dedicated Path Logic	N	N	Y
NERC	12/11/2007 4:00	227.5	OKGE	Eastern half of the state of Kansas	SPP	Y	Y	N	95,000	500	INT	Weather - Ice Storm	Y	Y	N
NERC	12/12/2007 1:49	0.2	ERCO	ERCOT area	ERCOT	Y	Y	N	N/A	N/A	UO	System Protection	N	N	Y
NERC	12/12/2007 8:55	2.1	PNM	Arizona-New Mexico	WECC-AZNMSNV	Y	N	N	N/A	N/A	UO	Equipment Failure - Breaker Fault	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	12/13/2007 11:23	0.3	PJM	ConEd and PSE&G	RFC	Y	Y	N	N/A	N/A	UO	Equipment Failure - Feeder Fault	N	N	Y
NERC	12/16/2007 1:00	120.5	PJM	Eastern Pennsylvania	RFC	Y	Y	N	176,000	N/A	INT	Weather - Ice Storm	N	Y	Y
NERC	12/22/2007 2:52	1.3	ERCO	Eastern Region of ERCOT	ERCOT	Y	Y	N	N/A	N/A	UO	Equipment Failure	N	N	Y
NERC	12/23/2007 1:00	12.0	CE	Entire ComEd service territory.	RFC	Y	Y	N	69,000	N/A	INT	Weather - Ice Storm	N	Y	Y
NERC	1/5/2009 5:00	37.0	ERCO	Oncor Electric Delivery Company LLC	TRE	Y	Y	N	159,019	N/A	INT	Weather-Rain, Ice	N	N	Y
NERC	1/7/2009 17:00	3.1	DUK	Duke Energy-Carolinas	SERC	Y	N	N	70,000	300	INT	Weather-Rain Storm/High Winds	Y	N	Y
NERC	1/8/2009 11:43	12.5	FPL	Florida Keys Electric Coop.	FRCC	Y	N	N	32,000	108	INT	UNKOWN-Suspected: Bird Droppings	Y	Y	Y
NERC	1/17/2009 8:00	192.0	PJM	State Line Energy – Hammond, IN	RFC	Y	Y	N	N/A	N/A	UO	Fuel Supply Problems-Coal Inventory	N	N	N

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	1/22/2009 16:00	1.1	IPL	Crawfordsville Electric Light and Power	RFC	Y	Y	Y	9,700	51	INT	Human Error-Crane Overhead Fault	Y	Y	Y
NERC	1/25/2009 1:20	0.1	MISO	MISO	RFC	Y	Y	Y	N/A	N/A	UO	OSL Violation-Post Contingent Low Voltages	N	N	Y
NERC	1/27/2009 5:03	96.2	EKPC	East Kentucky Power Coop	SERC	Y	N	N	190,000	600	UO	Weather-Rain, High Winds, Snow	Y	Y	Y
NERC	1/27/2009 8:00	48.0	EES	Arkansas Electric Cooperative Corporation	SPP	Y	N	N	490,000	600	INT	Weather-Rain, Ice, Snow	Y	Y	Y
NERC	1/27/2009 11:00	79.0	AECI	Associated Electric Cooperative Inc	SERC	Y	N	N	62,500	200	INT	Weather-Rain, High Winds, Snow	Y	Y	Y
NERC	1/27/2009 12:00	78.0	BREC	Big Rivers Electric Corp.	SERC	Y	N	N	3	350	UO	Weather-Rain, Ice, Snow	Y	Y	Y
NERC	1/27/2009 13:46	76.2	EES	Entergy - Arkansas	SERC	Y	N	N	52,000	N/A	INT	Weather-Rain, Ice, Snow	N	N	Y
NERC	1/27/2009 15:43	74.3	ERCO	AEP-West CSWS	TRE	Y	Y	N	59,402	N/A	INT	Weather-Rain, Ice, Snow	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	1/27/2009 17:00	73.0	LGEE	E.ON-US LLC - (LG&E and KU)	SERC	Y	N	N	383,000	N/A	INT	Weather-Rain, Ice, Snow	N	N	Y
NERC	1/27/2009 21:00	72.0	EES	Owensboro, KY Municipal Utilities	SERC	Y	N	N	13,500	60	INT	Weather-Rain, Ice, Snow	Y	Y	Y
NERC	1/27/2009 21:45	0.5	TVA	TVA	SERC	Y	N	N	1	850	INT	Weather-Rain, Ice, Snow	Y	Y	Y
NERC	1/28/2009 0:10	0.5	AMMO	AMEREN	SERC	Y	Y	Y	N/A	N/A	UO	Weather-Rain, Ice, Snow	N	N	Y
NERC	1/28/2009 3:00	63.0	MISO	MISO – IL, IN, OH, KT	RFC	Y	Y	Y	230,000	N/A	INT	Weather-Rain, Ice, Snow	N	N	Y
NERC	1/28/2009 4:00	71.0	EES	Henderson Municipal Power & Light	SERC	Y	N	N	7,000	50	INT	Weather-Rain, Ice, Snow	Y	Y	Y
NERC	1/28/2009 6:00	60.0	SIGE	Southern Indiana G&E a.k.a., Vectren Energy	RFC	Y	Y	Y	67,285	506	INT	Weather-Rain, Ice, Snow	Y	Y	Y
NERC	1/28/2009 7:50	58.2	CIN	Duke Energy-Midwest	RFC	Y	Y	Y	57,300	N/A	INT	Weather-Rain, Ice, Snow	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	1/28/2009 9:00	57.0	TVA	TVA	SERC	Y	N	N	109,527	N/A	INT	Weather-Rain, Ice, Snow	N	N	Y
NERC	1/29/2009 16:00	35.0	PJM	AEP-East – KY, WV, OH	RFC	Y	Y	N	210,000	N/A	INT	Weather-Rain, Ice, Snow	N	N	Y
NERC	2/11/2009 2:30	9.5	ERCO	CenterPoint Energy	TRE	Y	Y	N	64,801	350	INT	Weather-Rain, Ice, Snow	Y	Y	Y
NERC	2/11/2009 2:40	1.0	MISO	Illinois Municipal Electric Agency	RFC	Y	Y	Y	4,309	10	INT	Weather-Rain, Ice, Snow	Y	Y	Y
NERC	2/11/2009 18:00	47.0	PJM	AEP-East – KY, WV, OH	RFC	Y	Y	N	279,813	N/A	INT	Weather-Rain, Ice, Snow, High Winds	N	N	Y
NERC	2/11/2009 18:18	121.9	PJM	Allegheny Power System	RFC	Y	Y	N	374,644	N/A	INT	Weather-Rain, Ice, Snow, High Winds	N	N	Y
NERC	2/11/2009 19:00	16.0	LGEE	E.ON US LLC - (LG&E and KU)	SERC	Y	N	N	78,000	N/A	INT	Weather-Thunderstorm, High Winds	N	N	Y
NERC	2/11/2009 21:00	15.0	CIN	Duke Energy-Midwest	RFC	Y	Y	Y	63,000	350	INT	Weather-Rain, Ice, Snow	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	2/12/2009 2:30	13.5	PJM	First Energy Corp	RFC	Y	Y	N	184,000	168	INT	Weather-Rain, Ice, Snow, High Winds	Y	Y	Y
NERC	2/12/2009 8:00	86.0	PJM	Penelec, a FirstEnergy Company	RFC	Y	Y	N	132,000	130	INT	Weather-Rain, Ice, Snow, High Winds	Y	Y	Y
NERC	2/23/2009 3:28	95.2	ISNE	Central Maine Power Company	NPCC	Y	Y	N	12,223	N/A	INT	Weather-Rain, Ice, Snow, High Winds	N	N	Y
NERC	3/1/2009 0:15	0.1	EPE	El Paso Electric Company	WECC	Y	N	N	116,000	250	INT	Equipment Failure-Substation Breaker	Y	Y	Y
NERC	3/1/2009 16:00	7.3	SOCO	Southern Company	SERC	Y	N	N	60,000	75	INT	Weather-Rain, Ice, Snow, High Winds	Y	Y	Y
NERC	3/1/2009 20:54	43.2	DUK	Duke Energy-Carolinas	SERC	Y	N	N	180,000	1,000	INT	Weather-Rain, Ice, Snow, High Winds	Y	N	Y
NERC	3/1/2009 22:00	44.0	PJM	Dominion – Virginia Power	SERC	Y	Y	N	217,000	210	INT	Weather-Rain, Ice, Snow, High Winds	Y	Y	Y
NERC	3/3/2009 22:00	22.3	PJM	AEP – Appalachian Power / Roanoke, VA Area	RFC	Y	Y	N	N/A	350	PA	Weather-Rain, Ice, Snow, High Winds	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	3/4/2009 18:02	2.0	SOCO	Southern Company	SERC	Y	N	N	N/A	N/A	UO	Human Error-Misoperation of Water Valve	N	N	Y
NERC	3/4/2009 20:28	24.5	PJM	Allegheny Power System	RFC	Y	Y	N	N/A	N/A	UO	SPS-Suspected System Protection Misoperation	N	N	Y
NERC	3/23/2009 15:01	0.4	AESO	Alberta Electric System Operator	WECC	N	Y	N	N/A	N/A	UO	Weather-UNKNOWN	N	N	Y
NERC	3/26/2009 3:51	24.0	TVA	TVA	SERC	Y	N	N	N/A	N/A	N/A	Equipment Failure-Transformer	N	N	Y
NERC	4/6/2009 1:00	59.0	PJM	Consumers Energy Company	RFC	Y	Y	Y	70,793	75	INT	Weather-Rain, Ice, Snow, High Winds	Y	Y	Y
NERC	4/6/2009 18:28	5.0	CPLE,CPLW	North Carolina Eastern Municipal Power Agency	SERC	Y	N	N	4,300	27	INT	Equipment Failure-Transmission	Y	Y	Y
NERC	4/10/2009 22:00	4.5	SOCO	Southern Company	SERC	Y	N	N	56,679	162	INT	Weather-Thunderstorm	Y	Y	Y
NERC	4/13/2009 1:20	55.7	SOCO	Southern Company	SERC	Y	N	N	237,000	526	INT	Weather-Spring Thunderstorm, High Winds	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	4/19/2009 23:00	9.5	ERCO	NRG Texas Power LLC	TRE	Y	Y	N	N/A	N/A	UO	Cyber-Software Virus	N	N	Y
NERC	4/23/2009 16:25	8.1	PSEI	Puget Sound Energy	WECC	Y	N	N	93,300	244	UO	Equipment Failure-Substation	Y	Y	Y
NERC	4/23/2009 17:54	2.1	CISO	Southern California Edison Company	WECC	Y	Y	N	280,000	512	INT	Human Error-Construction Mishap	Y	Y	Y
NERC	4/24/2009 11:09	0.2	CECD	Constellation Energy Control and Dispatch, BA Services Provider for the City of Ruston, LA	SPP	Y	Y	N	11,000	32	INT	Human Error-Construction Mishap	Y	Y	Y
NERC	4/25/2009 14:30	94.5	MISO	Detroit Edison, Western Region of Service Territory	RFC	Y	Y	Y	125,000	N/A	INT	Weather-Rain Storm/High Winds	N	N	Y
NERC	4/27/2009 15:30	32.0	ERCO	CenterPoint Energy - Greater Houston / Galveston area	TRE	Y	Y	N	158,000	176	INT	Weather-Rain Storm/High Winds	Y	Y	Y
NERC	5/8/2009 7:30	25.5	EDE	Empire District Electric Company	SPP	Y	Y	N	83,000	266	INT	Weather-Derecho Windstorm	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	5/8/2009 23:30	143.8	AMMO	AMEREN	SERC	Y	Y	Y	68,800	300	INT	Weather-Derecho Windstorm	Y	Y	Y
NERC	5/13/2009 13:02	8.1	HQT	Hydro-Quebec TransEnergie	NPCC	N	N	N	N/A	N/A	UO	Fire-Vegetation/Trees	N	N	Y
NERC	5/29/2009 9:05	1.3	BREC	Big Rivers Electric Coop.	SERC	Y	N	N	1	350	INT	Equipment Failure-Capacitor	Y	Y	Y
NERC	6/4/2009 13:35	1.0	NSB	Utilities Commission, City of New Smyrna Beach	FRCC	Y	N	N	13,639	32	INT	Weather-Lightning	Y	Y	Y
NERC	6/5/2009 13:18	7.0	PACE,PACW	Pacific Gas and Electric Company	WECC	Y	Y	N	70	1	INT	Equipment Failure-Relay-Islanding	Y	Y	Y
NERC	6/9/2009 17:25	35.6	PJM	Baltimore Gas & Electric Company	RFC	Y	Y	N	86,482	60	INT	Weather-Thunderstorms	Y	Y	Y
NERC	6/10/2009 18:00	96.0	ERCO	Oncor Electric Delivery Company LLC - North and Central Texas	TRE	Y	Y	N	800,000	N/A	INT	Weather-Thunderstorms	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	6/12/2009 16:37	2.3	TVA	TVA for Memphis Light Gas & Water, TN	SERC	Y	N	N	136,000	860	INT	Weather-Lightning, Thunderstorms	Y	Y	Y
NERC	6/12/2009 17:45	78.2	EES	Entergy Corporation – Arkansas/North Mississippi	SERC	Y	N	N	79,784	N/A	INT	Weather-Thunderstorms	N	N	Y
NERC	6/12/2009 22:00	20.0	SOCO	Southern Company	SERC	Y	N	N	102,000	290	INT	Weather-Lightning, Thunderstorms	Y	Y	Y
NERC	6/13/2009 19:04	0.2	AESO	Alberta Electric System Operator	WECC	N	Y	N	N/A	N/A	UO	Equipment Failure-Unknown	N	N	Y
NERC	6/14/2009 2:02	3.0	NYIS	NYISO	NPCC	Y	Y	N	N/A	N/A	UO	Equipment Failure-Unknown	N	N	Y
NERC	6/16/2009 23:00	3.0	CISO	California Department of Water Resources	WECC	Y	Y	N	N/A	300	UO	Equipment Failure-Unknown	Y	Y	Y
NERC	6/17/2009 9:50	1.5	KCPL	Kansas City Power & Light	SPP	Y	Y	N	48,858	258	INT	Policy Violation-Vegetation Interference	Y	Y	Y
NERC	6/19/2009 0:01	24.0	PJM	Consumers Energy Company	RFC	Y	Y	Y	99,000	75	INT	Weather-Lightning, Thunderstorms	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	6/19/2009 1:00	23.0	PJM	Exelon Corp-Commonwealth Edison	RFC	Y	Y	N	245,000	N/A	INT	Weather-Lightning, Thunderstorms	N	N	Y
NERC	6/24/2009 13:30	54.5	LAGN	Louisiana Generating LLC, Southwest Louisiana Electric Membership Corp	SPP	Y	Y	N	N/A	N/A	PA	Public Appeal-Press Release	N	N	Y
NERC	6/25/2009 0:49	45.3	PJM	First Energy Corp	RFC	Y	Y	N	N/A	N/A	UO	Equipment Failure-CCVT	N	N	Y
NERC	6/25/2009 15:16	3.7	ERCO	ERCOT ISO	TRE	Y	Y	N	N/A	N/A	PA	Public Appeal-Heat Wave	N	N	Y
NERC	6/25/2009 15:30	76.5	MISO	Detroit Edison	RFC	Y	Y	Y	118,000	N/A	INT	Weather-Lightning, Thunderstorms	N	N	Y
NERC	6/26/2009 1:00	32.0	CIN	Duke Energy-Midwest	RFC	Y	Y	Y	85,000	327	INT	Weather-Lightning, Thunderstorms	Y	Y	Y
NERC	6/26/2009 17:00	27.0	ISNE	Northeast Utilities	NPCC	Y	Y	N	50,752	N/A	INT	Weather-Lightning, Thunderstorms	N	N	Y
NERC	7/2/2009 22:44	2.7	ISNE	ISO New England for Central Maine	NPCC	Y	Y	N	N/A	N/A	UO	Weather-Lightning	N	N	Y
NERC	7/4/2009 12:52	0.2	AESO	Alberta Electric System Operator	WECC	N	Y	N	N/A	N/A	UO	Equipment Failure-Unknown	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	7/4/2009 15:30	0.2	AESO	Alberta Electric System Operator	WECC	N	Y	N	N/A	N/A	UO	Equipment Failure-Unknown	N	N	Y
NERC	7/7/2009 15:30	3.5	ERCO	ERCOT ISO – San Antonio, TX	TRE	Y	Y	N	N/A	N/A	UO	Public Appeal-Generation Inadequacy	N	N	Y
NERC	7/8/2009 13:30	5.5	ERCO	ERCOT ISO	TRE	Y	Y	N	N/A	N/A	UO	Public Appeal-Heat Wave	N	N	Y
NERC	7/13/2009 12:29	0.2	AESO	Alberta Electric System Operator	WECC	N	Y	N	N/A	N/A	UO	Weather-Lightning Strike/Equipment Failure	N	N	Y
NERC	7/14/2009 13:00	5.0	AEPT	AEP (CSWS) in the SPP Reliability Region	SPP	Y	Y	N	N/A	N/A	PA	Public Appeal-Load Reduction	N	N	Y
NERC	7/15/2009 13:00	5.0	AEPT	AEP (CSWS) in the SPP Reliability Region	SPP	Y	Y	N	N/A	N/A	PA	Public Appeal-Load Reduction	N	N	Y
NERC	7/16/2009 13:00	5.0	AEPT	AEP (CSWS) in the SPP Reliability Region	SPP	Y	Y	N	N/A	N/A	PA	Public Appeal-Load Reduction	N	N	Y
NERC	7/17/2009 17:32	0.3	CPLE,CPLW	North Carolina Eastern Municipal Power Agency	SERC	Y	N	N	11,878	56	INT	Weather-Thunderstorm, Lightning	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	7/18/2009 19:00	2.0	ERCO	CenterPoint Energy	TRE	Y	Y	N	73,000	51	INT	Weather-Thunderstorms, High Winds	Y	Y	Y
NERC	7/18/2009 22:00	2.5	AESO	Alberta Electric System Operator	WECC	N	Y	N	N/A	N/A	UO	Weather-Thunderstorms, Tornado	N	N	Y
NERC	7/20/2009 15:31	0.4	CPLE,CPLW	North Carolina Eastern Municipal Power Agency	SERC	Y	N	N	6,720	37	INT	Equipment Failure-Unknown	Y	Y	Y
NERC	7/20/2009 21:50	24.7	PSCO	Public Service of Colorado	WECC	Y	N	N	86,058	150	INT	Weather-Thunderstorms, Lightning, High Winds, Hail	Y	Y	Y
NERC	7/21/2009 5:34	4.4	CISO	Crockett Co-Generation – San Francisco Bay Area, CA	WECC	Y	Y	N	1	136	INT	Equipment Failure-High Bearing Vibration	Y	Y	Y
NERC	7/26/2009 21:15	1.7	CPLE,CPLW	North Carolina Eastern Municipal Power Agency	SERC	Y	N	N	3,878	12	INT	Equipment Failure-Unknown	Y	Y	Y
NERC	7/28/2009 20:18	0.2	PACE,PACW	PacificCorp	WECC	Y	N	N	N/A	316	INT	Equipment Failure-Capacitor Bank	Y	Y	Y
NERC	7/30/2009 13:48	2.2	MHEB	Manitoba Hydro Electricity Board	MRO	N	Y	Y	38,073	N/A	INT	Animal Contact	N	N	Y
NERC	8/4/2009 13:45	7.3	CIN	Duke Energy Midwest	RFC	Y	Y	Y	63,700	50	INT	Weather-Thunderstorms-Lightning-High Winds	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	8/5/2009 15:00	4.0	ERCO	ERCOT ISO	TRE	Y	Y	N	N/A	N/A	PA	Public Appeal-High Temps-Generation Limitations	N	N	Y
NERC	8/6/2009 14:46	7.1	ERCO	CenterPoint Energy / ExxonMobil Refining & Supply Company	TRE	Y	Y	N	N/A	N/A	UO	Voltage Drop-PH-PH Fault	N	N	Y
NERC	8/7/2009 23:00	95.0	PJM	Detroit Edison	RFC	Y	Y	Y	137,000	N/A	INT	Weather-Summer Storm, High Winds, Rain	N	N	Y
NERC	8/9/2009 19:31	14.5	PJM	Consumers Energy Company	RFC	Y	Y	Y	58,156	N/A	INT	Weather-High Winds	N	N	Y
NERC	8/12/2009 18:25	8.6	ERCO	CenterPoint Energy	TRE	Y	Y	N	70,872	491	INT	Weather-Thunderstorms	Y	Y	Y
NERC	8/14/2009 21:06	94.9	IPL	Indianapolis Power & Light Co.	RFC	Y	Y	Y	8,391	46	INT	Weather-Thunderstorm, Lightning	Y	Y	Y
NERC	8/21/2009 19:00	13.0	ERCO	CenterPoint Energy	TRE	Y	Y	N	80,000	544	INT	Weather-Thunderstorms-High Winds	Y	Y	Y

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NERC	8/29/2009 11:00	3.0	WAUE	WAPA-Upper Great Plains Region	MRO	Y	Y	Y	18	69	INT	Equipment Failure-Breaker Operation	Y	Y	Y
NERC	8/31/2009 10:21	13.6	CISO	Los Angeles Department of Water and Power	WECC	Y	N	N	N/A	N/A	PA	Public Appeal-Wildfires	N	N	Y
NERC	9/2/2009 23:02	3.0	AESO	Alberta Electric System Operations	WECC	N	Y	N	N/A	N/A	UO	Equipment Failure	N	N	Y
NERC	9/4/2009 16:14	1.3	AESO	Alberta Electric System Operations	WECC	N	Y	N	N/A	N/A	UO	Equipment Failure-Generation-Tube Leak	N	N	Y
NERC	9/7/2009 8:58	12.2	AESO	Alberta Electric System Operations	WECC	N	Y	N	N/A	N/A	UO	Equipment Failure-Generation	N	N	Y
NERC	9/9/2009 17:59	0.6	AESO	Alberta Electric System Operations	WECC	N	Y	N	N/A	16	UO	Equipment Failure-Generation-Tube Leak	Y	Y	Y
NERC	9/19/2009 15:55	0.7	CFE	Comisión Federal de Electricidad	WECC	N	N	N	N/A	110	UO	Earthquake-Firm Load Lost	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	10/7/2009 3:04	1.6	PJM	Consumers Energy Company	RFC	Y	Y	Y	53,000	N/A	INT	Weather-High Winds	N	N	Y
NERC	10/7/2009 5:45	65.3	DEMO	Detroit Edison, Subsidiary of DTE Energy	RFC	Y	Y	Y	75,000	N/A	INT	Weather-Fall Storm, High Winds, Rain	N	N	Y
NERC	10/9/2009 9:53	0.3	EES	Clarksdale Public Utilities	SERC	Y	N	N	7,102	24	INT	Weather-Complete Electrical System Failure	Y	Y	Y
NERC	10/9/2009 10:45	53.3	EES	Entergy Corporation	SERC	Y	N	N	56,000	N/A	INT	Weather-Cold Storm	N	N	Y
NERC	10/9/2009 18:30	0.7	CISO	California Department of Water Resources	WECC	Y	Y	N	N/A	180	UO	Equipment Failure-Breaker	Y	Y	Y
NERC	10/13/2009 4:00	18.5	PACE,PACW	Pacific Gas and Electric Company	WECC	Y	Y	N	859,554	350	INT	Weather-Fall Storm, High Winds, Rain	Y	Y	Y
NERC	10/13/2009 12:48	1.8	WAUW	Western Area Power Administration – Rocky Mountain Region	WECC	Y	N	N	35,000	101	INT	Weather-Ice, Shed Firm Load, Ground Fault	Y	Y	Y
NERC	10/13/2009 15:45	2.1	SMUD	Sacramento Municipal Utility District	WECC	Y	N	N	94,000	90	INT	Weather-Tropical Storm	Y	Y	Y
NERC	10/13/2009 16:09	25.6	CISO	California ISO	WECC	Y	Y	N	N/A	N/A	PA	Public Appeal-Downed Transmission	N	N	Y

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NERC	10/22/2009 16:25	1.1	AESO	Alberta Electric System Operations	WECC	N	Y	N	N/A	N/A	UO	Human Error-Relay Operation-Islanding	N	N	Y
NERC	10/30/2009 8:49	4.4	CECD	Ruston Power and Light	TRE	Y	Y	N	11,000	28	INT	Equipment Failure-Transformer Bushing	Y	Y	Y
NERC	11/12/2009 18:45	33.7	DUK	Dominion Virginia Power / Dominion North Carolina Power	SERC	Y	Y	N	335,000	400	INT	Weather-Storm	Y	Y	Y
NERC	11/13/2009 12:01	4.6	PJM	Jersey Central Power & Light	RFC	Y	Y	N	13,490	44	INT	Weather-High Winds, Coastal Storm	Y	Y	Y
NERC	11/18/2009 6:15	1.5	CISO	California Department of Water Resources	WECC	Y	Y	N	N/A	630	UO	Human Error-Operator	Y	Y	Y
NERC	12/7/2009 18:05	1.2	CISO	California Independent System Operator	WECC	Y	Y	N	N/A	N/A	PA	Weather-Cold, Inadequate Electric Resources to Serve Load	N	N	Y
NERC	12/8/2009 6:34	2.4	CISO	California Independent System Operator	WECC	Y	Y	N	N/A	N/A	PA	Weather-Cold, Inadequate Electric Resources to Serve Load	N	N	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
NERC	12/9/2009 13:37	16.9	AEPT	AEP East Transmission	RFC	Y	Y	N	89,800	N/A	INT	Weather-Snow, Ice, High Winds	N	N	Y
NERC	12/9/2009 17:45	3.2	PJM	Detroit Edison, Subsidiary of DTE Energy	RFC	Y	Y	Y	52,424	N/A	INT	Weather-Snow, Sleet, High Winds	N	N	Y
NERC	12/15/2009 9:32	0.3	HQT	Hydro-Quebec TransEnergie	NPCC	N	N	N	N/A	2,200	UO	UNKNOWN-To Be Determined	Y	Y	Y
NERC	12/18/2009 20:30	169.0	AEPT	AEP East Transmission	RFC	Y	Y	N	299,713	N/A	INT	Weather-Snow, Sleet, High Winds	N	N	N
NERC	12/18/2009 22:55	24.3	CPLE,CPLW	Progress Energy – Carolinas Inc	SERC	Y	N	N	67,000	N/A	INT	Weather-Snow, Sleet, High Winds	N	N	Y
NERC	12/21/2009 12:40	0.3	AESO	Alberta Electric System Operations	WECC	N	Y	N	N/A	N/A	UO	Weather-Galloping Conductors	N	N	Y
EIA	1/4/2008 4:00	253.0	Northern California	Pacific Gas and Electric Company (WECC)	WECC	Y	Y	N	2,606,931	500	N/A	Winter Storm	Y	Y	N
EIA	1/4/2008 7:47	8.7	Sacramento County	Sacramento Municipal Utility District (WECC)	WECC	Y	N	N	150,000	300	N/A	Severe Storm	Y	Y	Y
EIA	1/29/2008 5:00	7.3	San Francisco Bay Area, California	Crockett Cogeneration (WECC)	WECC	Y	Y	N	N/A	N/A	N/A	Exciter Faulted	N	Y	Y
EIA	1/29/2008 16:00	112.0	Arkansas, Mississippi, North Louisiana	Entergy Corporation (SERC)	SERC	Y	N	N	110,000	N/A	N/A	Severe Thunderstorms	N	Y	Y
EIA	1/29/2008 22:00	68.5	Southeastern Michigan	DTE Energy - Detroit Edison (RFC)	RFC	Y	Y	Y	86,915	N/A	N/A	Wind/Ice Storm	N	Y	Y
EIA	1/29/2008 23:23	1.4	South Metropolitan Areas of Dayton, OHio	Dayton Power and Light (RFC)	RFC	Y	Y	N	45,000	380	N/A	High Winds	Y	Y	Y
EIA	1/30/2008 3:06	59.7	Western, New York	Niagara Mohawk Power Corporation (NPCC)	NPCC	Y	Y	N	54,316	50	N/A	High Winds	Y	Y	Y

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EIA	2/1/2008 6:00	1.8	San Francisco Bay Area, California	Crockett Cogeneration (WECC)	WECC	Y	Y	N	N/A	N/A	N/A	Equipment Faulted	N	Y	Y
EIA	2/2/2008 3:58	12.5	San Francisco Bay Area, California	Crockett Cogeneration (WECC)	WECC	Y	Y	N	N/A	N/A	N/A	Equipment Faulted	N	Y	Y
EIA	2/5/2008 22:00	5.0	State of Kentucky	LG&E Energy/Kentucky Utilities (SERC)	SERC	Y	N	N	76,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	2/6/2008 9:00	2.0	Mid to West Tennessee	Tennessee Valley Authority (SERC)	SERC	Y	N	N	57,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	2/9/2008 11:59	3.6	Near Arnold, California	Pacific Gas and Electric Company (WECC)	WECC	Y	Y	N	0	0	N/A	Electrical System Separation	Y	Y	Y
EIA	2/10/2008 4:00	64.7	Southwestern Pennsylvania, West Virginia, Virginia, Maryland	Allegheny Power (RFC)	RFC	Y	Y	N	100,969	412	N/A	Severe Weather	Y	Y	Y
EIA	2/10/2008 11:00	12.6	Virginia, West Virginia, Ohio, Pennsylvania	PJM Interconnection LLC (RFC)	RFC	Y	Y	N	212,560	N/A	N/A	High Winds	N	Y	Y
EIA	2/10/2008 11:00	102.1	Virginia and West Virginia Area of AEP	American Electric Power (RFC)	RFC	Y	Y	N	97,342	N/A	N/A	High Winds	N	Y	Y
EIA	2/10/2008 14:06	9.5	Dominion Service Territory	Dominion-Virginia Power (SERC)	SERC	Y	Y	N	114,618	170	N/A	High Winds	Y	Y	Y
EIA	2/10/2008 18:02	10.0	Greenboro, North Carolina and I-40 Corridor	Duke Energy Carolinas (SERC)	SERC	Y	N	N	50,718	300	N/A	High Winds	Y	Y	Y
EIA	2/12/2008 15:00	74.0	Arkansas, Mississippi, Louisiana	Entergy Corporation (SERC)	SERC	Y	N	N	54,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	2/13/2008 18:43	17.3	State of Maine	ISO New England (NPCC)	NPCC	Y	Y	N	50,462	50	N/A	Ice Storm	Y	Y	Y
EIA	2/14/2008 8:15	2.5	Utah	PacifiCorp (WECC)	WECC	Y	N	N	74,031	2,818	N/A	Load Shedding	Y	Y	Y
EIA	2/15/2008 15:06	4.5	Antioch, California	Pacific Gas and Electric Company (WECC)	WECC	Y	Y	N	10,008	10	N/A	Electrical System Separation	Y	Y	Y
EIA	2/25/2008 8:00	384.0	Restricted Coal Capability	Owensboro Municpal Utilities (RFC)	RFC	Y	N	N	0	N/A	N/A	Fuel Supply Deficiency	N	Y	N
EIA	2/26/2008 5:00	10.0	Southern Service Area/Alabama and Georgia	Southern Company (SERC)	SERC	Y	N	N	145,380	484	N/A	Thunderstorms	Y	Y	Y
EIA	2/26/2008 13:09	1.0	Various Cities in Florida	Florida Municipal Power Agency (FRCC)	FRCC	Y	N	N	47,661	140	N/A	Under Frequency/Load Shedding	Y	Y	Y
EIA	2/26/2008 13:09	1.5	Tampa Electric Service Territory	Tampa Electric Company (FRCC)	FRCC	Y	N	N	53,965	318	N/A	Under Frequency/Load Shedding	Y	Y	Y
EIA	2/26/2008 13:09	3.0	Primary Dade County Florida	Florida Power and Light (FRCC)	FRCC	Y	N	N	584,384	3,200	N/A	Transmission Equipment Failure	Y	Y	Y
EIA	2/26/2008 13:09	0.6	FRCC Region-West Coast Florida	Seminole Electric Cooperative (FRCC)	FRCC	Y	N	N	56,000	120	N/A	Shed Firm Load	Y	Y	Y

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EIA	2/26/2008 13:10	2.6	The entire PEF system was affected, including the following counties: Alachua, Bay, Citrus, Columbia, Dixie, Franklin, Gilchrist, Gulf, Hamilton, Hardee, Hernando, Highlands, Jefferson, Lafayette, Lake, Levy, Madison, Marion, Orange, Osecola, Pasco, Pinellas, Polk, Seminole, Sumter, Suwannee, Taylor, Volusia, Wakulla.	Progress Energy Florida (FRCC)	FRCC	Y	N	N	150,000	500	N/A	Under Frequency/Load Shedding	Y	Y	Y
EIA	3/4/2008 21:30	1.2	North and South Carolina	Duke Energy Carolinas (SERC)	SERC	Y	N	N	55,267	300	N/A	Thunderstorms	Y	Y	Y
EIA	3/8/2008 14:14	7.8	Virginia and Eastern Part of North Carolina	Dominion-Virginia Power (SERC)	SERC	Y	Y	N	141,130	210	N/A	Windstorm	Y	Y	Y
EIA	3/8/2008 16:00	45.7	Chester, Montgomery, Delaware, Philadelphia and Bucks County, Pennsylvania	PECO Energy (RFC)	RFC	Y	Y	N	168,449	N/A	N/A	Severe Weather	N	Y	Y
EIA	3/15/2008 20:55	23.6	Parts of Alabama and Georgia	Southern Company (SERC)	SERC	Y	N	N	157,744	200	N/A	Major Storm	Y	Y	Y
EIA	4/4/2008 12:31	4.5	Arkansas, North Louisiana, Mississippi	Entergy Corporation (SERC)	SERC	Y	N	N	122,600	N/A	N/A	Severe Thunderstorms	N	Y	Y
EIA	4/9/2008 16:00	81.3	North, Central and East Texas	Oncor Electrtic Delivery Company LLC (TRE)	TRE	Y	Y	N	488,689	N/A	N/A	Severe Weather	N	Y	Y
EIA	5/8/2008 10:21	N/A	California	California ISO (WECC)	WECC	Y	Y	N	0	483	N/A	Load Shedding	N	Y	Y
EIA	5/11/2008 6:00	32.5	Georgia	Southern Company (SERC)	SERC	Y	N	N	80,539	100	N/A	Severe Thunderstorms	Y	Y	Y
EIA	5/11/2008 16:50	3.9	City of Crawfordsville, Indiana	Crawfordsville Electric Light and Power (RFC)	RFC	Y	Y	Y	9,700	47	N/A	Electric System Separation	Y	Y	Y
EIA	5/12/2008 0:01	48.0	Cape May, Cumberland, Gloucester, Salem, Camden, Atlantic, Burliington Counties, New Jersey	Atlantic City Electric (RFC)	RFC	Y	Y	N	135,000	55	N/A	Severe Storm	Y	Y	Y
EIA	5/27/2008 14:02	1.8	South West Connecticut	ISO New England (NPCC)	NPCC	Y	Y	N	56,400	130	N/A	Lightning Storm	Y	Y	Y
EIA	5/30/2008 9:30	13.5	Northern and Western Counties of Illinois	Exelon Corporation-ComEd (RFC)	RFC	Y	Y	N	109,000	N/A	N/A	Severe Storms	N	Y	Y
EIA	5/30/2008 14:05	5.9	South Louisiana	Entergy Services, Inc. (SERC)	SERC	Y	N	N	N/A	200	N/A	Load Shedding, Inadequate Electric Resources to Serve Load	Y	Y	Y

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EIA	5/30/2008 22:00	122.0	Northeastern Marion County, Indiana	Indianapolis Power and Light (RFC)	RFC	Y	Y	Y	70,000	N/A	N/A	Severe Thunderstorms	N	Y	Y
EIA	6/3/2008 17:00	102.0	Maryland, West Virginia, Virginia	Allegheny Power (RFC)	RFC	Y	Y	N	157,168	634	N/A	Severe Weather	Y	Y	Y
EIA	6/4/2008 15:00	10.0	Montgomery, Prince Georges, Maryland, Washington, D.C.	Potomac Electric Power Company (RFC)	RFC	Y	Y	N	249,408	N/A	N/A	Lightning Storm	N	Y	Y
EIA	6/4/2008 15:00	62.5	Entire BGE Service Territory	Baltimore Gas and Electric Company (RFC)	RFC	Y	Y	N	108,000	N/A	N/A	Severe Storms	N	Y	Y
EIA	6/4/2008 15:04	30.4	Northern Virginia	Dominion-Virginia Power (SERC)	SERC	Y	Y	N	253,800	850	N/A	Thunderstorms	Y	Y	Y
EIA	6/4/2008 15:14	0.5	Island of Puerto Rico	Puerto Rico Electric Power Authority (PR)	PR	N	N	N	100,948	90	N/A	Load Shedding/Voltage Reduction	Y	Y	Y
EIA	6/6/2008 15:18	136.7	Lower 2/3 of Michigan's Lower Peninsula	Consumers Energy (RFC)	RFC	Y	Y	Y	358,000	100	N/A	Lightning Storm	Y	Y	Y
EIA	6/8/2008 9:30	21.5	The Entire ComEd Territory	Exelon Corporation-ComEd (RFC)	RFC	Y	Y	N	125,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	6/8/2008 18:00	197.5	Southwestern Michigan (DECO Service Territory)	Detroit Edison Company-DTE (RFC)	RFC	Y	Y	Y	150,000	500	N/A	Severe Storm	Y	Y	N
EIA	6/9/2008 14:00	5.0	Entergy System	Entergy Services, Inc. (SERC)	SERC	Y	N	N	19	300	N/A	Indequate Electric Resources to Serve Load	N	Y	Y
EIA	6/9/2008 14:52	5.6	Area Around West Orange Switching Station, New Jersey	Public Service Electric and Gas (RFC)	RFC	Y	Y	N	75,654	215	N/A	Fire/Breaker Failure	Y	Y	Y
EIA	6/10/2008 11:00	78.5	Upstate New York	National Grid (NPCC)	NPCC	Y	Y	N	68,000	400	N/A	Severe Storm	Y	Y	Y
EIA	6/10/2008 14:00	4.0	Entergy System	Entergy Services, Inc. (SERC)	SERC	Y	N	N	19	300	N/A	Inadequate Electric Resources to Serve Load	N	Y	Y
EIA	6/10/2008 18:00	89.5	Bergen, Essex and Hudson Counties, New Jersey	Public Service Electric and Gas (RFC)	RFC	Y	Y	N	248,800	N/A	N/A	Severe Storms	N	Y	Y
EIA	6/10/2008 19:00	93.0	Chester, Montgomery, Delaware, Philadelphia and Bucks County, Pennsylvania	PECO Energy (RFC)	RFC	Y	Y	N	198,000	N/A	N/A	Severe Thunderstorms	N	Y	Y
EIA	6/10/2008 23:00	10.0	All Six New England States	ISO New England (NPCC)	NPCC	Y	Y	N	60,000	50	N/A	Storm	Y	Y	Y
EIA	6/11/2008 13:15	0.8	New York State	New York Independent System Operator (NPCC)	NPCC	Y	Y	N	61,000	200	N/A	Uncontrolled Loss	Y	Y	Y
EIA	6/12/2008 15:30	144.5	East Central Iowa	Midwest ISO, ITC, ALTW (RFC)	RFC	Y	Y	Y	21,000	200	N/A	Flooding and Uncontrolled Loss	Y	Y	Y
EIA	6/15/2008 8:00	12.0	The Entire ComEd Territory	Exelon Corporation-ComEd (RFC)	RFC	Y	Y	N	165,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	6/15/2008 19:06	1.6	City of Crawfordsville, Indiana	Crawfordsville Electric Light and Power (RFC)	RFC	Y	Y	Y	9,700	57	N/A	Electrical System Separation	Y	Y	Y
EIA	6/16/2008 16:15	7.1	Northern Virginia	Dominion-Virginia Power (SERC)	SERC	Y	Y	N	115,000	800	N/A	Thunderstorms	Y	Y	Y
EIA	6/17/2008 9:01	59.5	North, Central and East Texas	Oncor Electric Delivery Company LLC (TRE)	TRE	Y	Y	N	234,393	N/A	N/A	Severe Thunderstorms	N	Y	Y

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EIA	6/17/2008 20:35	5.3	Southwestern Public Service Company Operating in the Panhandle of Texas and New Mexico	Southwestern Public Service Company (SPP)	SPP	Y	Y	N	18,000	560	N/A	Electrical System Separation/Severe Thunderstorms	Y	Y	Y
EIA	6/17/2008 20:40	2.3	Texas Panhandle and Texas South Plains Regions, and Oklahoma Panhandle	Golden Spread Electric Cooperative, Inc (TRE)	TRE	Y	Y	N	37,330	276	N/A	Thunderstorms/Uncontrolled Loss of Load	Y	Y	Y
EIA	6/21/2008 15:09	3.7	Near Rogers Flat, California	Pacific Gas and Electric Company (WECC)	WECC	Y	Y	N	477	3	N/A	Electrical System Separation/Severe Lightning Storms	Y	Y	Y
EIA	6/22/2008 16:55	0.2	Northwest Indiana	Northern Indiana Public Service Company (RFC)	RFC	Y	Y	Y	N/A	650	N/A	Lightning Stirke/Uncontrolled Loss of Load	Y	Y	Y
EIA	6/23/2008 13:44	0.0	Northcentral Indiana	Northern Indiana Public Service Company (RFC)	RFC	Y	Y	Y	N/A	425	N/A	Fire/Breaker Failure	Y	Y	Y
EIA	6/23/2008 16:52	6.6	Pinellas County, Florida	Progress Energy Florida (FRCC)	FRCC	Y	N	N	32,593	113	N/A	Transmission Equipment Failure/Load Shedding	Y	Y	Y
EIA	6/26/2008 17:00	4.5	Southeastern Michigan (DTE Service Territory)	Detroit Edison Company-DTE (RFC)	RFC	Y	Y	Y	53,000	N/A	N/A	Thunderstorms	N	Y	Y
EIA	6/27/2008 16:30	1.0	Omaha, Nebraska (Metro Area)	Omaha Public Power District (MRO)	MRO	Y	Y	N	126,000	650	N/A	Severe Wind Storm	Y	Y	Y
EIA	7/1/2008 7:31	4.5	San Francisco Bay Area, California	Crockett Cogeneration (WECC)	WECC	Y	Y	N	N/A	160	N/A	Unit Tripped	Y	Y	Y
EIA	7/2/2008 15:00	93.0	Lower 2/3 of Michigan's Lower Peninsula	Consumers Energy (RFC)	RFC	Y	Y	Y	239,663	125	N/A	Severe Weather	Y	Y	Y
EIA	7/2/2008 16:00	N/A	Restricted Hydroelectric Capability	State of California, Department of Water Resources (WECC)	WECC	Y	Y	N	N/A	N/A	N/A	Fuel Supply Deficiency	N	Y	N
EIA	7/2/2008 19:16	4.2	Santa Barbara County, California, near Goleta	California ISO (WECC)	WECC	Y	Y	N	200,000	208	N/A	Wild Land Fire	Y	Y	Y
EIA	7/2/2008 19:36	5.6	Goleta and Santa Barbara Areas of Southern California	Southern California Edison (WECC)	WECC	Y	Y	N	37,784	119	N/A	Brush Fire/Lines Loss/Transmission Emergency Declared	Y	Y	Y
EIA	7/2/2008 20:00	7.0	Southeastern Michigan (DTE Service Territory)	Detroit Edison Company-DTE (RFC)	RFC	Y	Y	Y	56,000	N/A	N/A	Thunderstorms	N	Y	Y
EIA	7/7/2008 12:15	76.8	ISO Balancing Area	California ISO (WECC)	WECC	Y	Y	N	0	0	N/A	Heat Wave/Potential Fire Threat/Made Public Appeals	Y	Y	Y
EIA	7/10/2008 14:22	3.0	San Francisco Bay Area, California	Crockett Cogeneration (WECC)	WECC	Y	Y	N	N/A	240	N/A	Unit Tripped	Y	Y	Y
EIA	7/21/2008 0:49	41.2	Sioux City, Carroll, Des Moines, Iowa City, and Davenport Iowa, Rock Island, Moline, and Surrounding Area of Illinois	MidAmercian Energy Company (MRO)	MRO	Y	Y	Y	185,000	170	N/A	Storm	Y	Y	Y
EIA	7/22/2008 3:00	64.5	Indiana	Duke Energy Indiana (RFC)	RFC	Y	Y	Y	58,000	N/A	N/A	Severe Thunderstorms	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	7/22/2008 3:00	24.5	Southwest Ohio	Duke Energy Ohio (RFC)	RFC	Y	Y	Y	56,000	N/A	N/A	Severe Thunderstorms	N	Y	Y
EIA	7/22/2008 14:00	39.1	Texas Panhandle and Southeastern New Mexico	Southwestern Public Service Company (SPP)	SPP	Y	Y	N	N/A	N/A	N/A	Indequate Electric Resources to Serve Load/Public Appeal	N	Y	Y
EIA	7/23/2008 5:56	190.1	Port Isabel, Harlingen, Weslaco, Pharr, San Benito, Mission, McAllen, Edinburg, Texas	American Electric Power (TRE)	TRE	Y	Y	N	211,266	703	N/A	Hurricane Dolly	Y	Y	N
EIA	7/24/2008 7:23	10.3	Bangor Hydro System, northern Maine	ISO New England (NPCC)	NPCC	Y	Y	N	110,000	180	N/A	Electric System Separation/Severe Lightning Storms	Y	Y	Y
EIA	8/2/2008 20:00	9.5	Georgia and Alabama	Southern Company (SERC)	SERC	Y	N	N	131,115	400	N/A	Severe Thunderstorms	Y	Y	Y
EIA	8/3/2008 1:30	2.8	Mississippi, Louisiana, Texas	Entergy Corporation (SERC)	SERC	Y	N	N	59,500	N/A	N/A	Severe Thunderstorms	N	Y	Y
EIA	8/4/2008 18:00	38.0	The ComEd Territory	Exelon Corporation West ComEd (RFC)	RFC	Y	Y	N	653,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/5/2008 3:00	6.8	Northwest Indiana	Northern Indiana Public Service Company (RFC)	RFC	Y	Y	Y	63,000	0	N/A	Severe Storms	Y	Y	Y
EIA	8/9/2008 12:00	8.8	Texas Panhandle and Eastern New Mexico	XCEL (Southwest Public Service Company) (SPP)	SPP	Y	Y	N	0	0	N/A	Declared Energy Emergency Alert 1/Made Public Appeals	N	Y	Y
EIA	8/15/2008 12:52	4.1	Part of Seattle's Downtown	Seattle City Light (WECC)	WECC	Y	N	N	8,000	100	N/A	Made Public Appeals	N	Y	Y
EIA	8/16/2008 5:23	2.1	City of Lubbock	Lubbock Power and Light (TRE)	TRE	Y	Y	N	71,823	153	N/A	Lightning/Transmission Equipment Damage	Y	Y	Y
EIA	8/16/2008 8:14	6.8	Island of Puerto Rico	Puerto Rico Electric Power Authority (PR)	PR	N	N	N	200,000	300	N/A	Shed Firm Load/Voltage Reduction	Y	Y	Y
EIA	8/18/2008 19:22	23.4	North Part of Island	Puerto Rico Electric Power Authority (PR)	PR	N	N	N	100,000	225	N/A	Shed Firm Load	Y	Y	Y
EIA	8/19/2008 9:29	84.5	Florida	Florida Power and Light (FRCC)	FRCC	Y	N	N	101,950	N/A	N/A	Tropical Storm Fay	N	Y	Y
EIA	8/21/2008 19:00	85.0	Alachua, Bay, Brevard, Citrus, Columbia, Dixie, Flagler, Franklin, Gilchrist, Gulf, Hamilton, Hardee, Hernando, Highlands, Jefferson, Lafayette, Lake, Leon, Levy, Madison, Marion, Orange, Osceola, Pasco, Pinellas, Polk, Seminole, Sumter, Suwannee, Taylor, Volusia and Wakulla Counties in Florida	Progress Energy Florida (FRCC)	FRCC	Y	N	N	430,000	N/A	N/A	Tropical Storm Fay	N	Y	Y
EIA	8/22/2008 12:00	24.0	-	Mirant Chalk Point LLC (RFC)	RFC	Y	Y	N	0	0	N/A	Fuel Supply Emergency-Low Coal Inventory Levels	N	Y	Y
EIA	8/24/2008 4:30	9.5	Georgia and Alabama	Southern Company (SERC)	SERC	Y	N	N	87,390	110	N/A	Tropical Storm Fay	Y	Y	Y

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EIA	8/31/2008 7:30	457.5	Plaquemine, Louisiana	Dow Chemical Company (SERC)	SERC	Y	N	N	0	200	N/A	Fuel Supply Curtailed	N	Y	N
EIA	8/31/2008 19:00	62.0	Louisiana, Mississippi, Arkansas	Entergy Corporation (SERC)	SERC	Y	N	N	964,000	N/A	N/A	Hurricane Gustav	N	Y	Y
EIA	9/1/2008 10:30	296.9	Primarily South and Central Louisiana	Louisiana Generating LLC (SERC)	SERC	Y	N	N	150,000	400	N/A	Hurricane Gustav	Y	Y	N
EIA	9/1/2008 11:45	220.2	Bayou Division and North Lake Division, Louisiana	Cleco Power LLC (SERC)	SERC	Y	Y	N	246,092	N/A	N/A	Hurricane Gustav	N	Y	N
EIA	9/6/2008 7:45	2.8	Eastern North Carolina	Progress Energy Carolinas (SERC)	SERC	Y	N	N	57,000	N/A	N/A	Tropical Storm Hanna	N	Y	Y
EIA	9/6/2008 14:15	1.8	North East North Carolina and Virginia	Dominion-Virginia Power (SERC)	SERC	Y	Y	N	64,463	220	N/A	Tropical Storm Hanna	Y	Y	Y
EIA	9/8/2008 22:03	2.4	A.D. Edmonston Pumping Plant	State of California, Department of Water Resources (WECC)	WECC	Y	Y	N	0	300	N/A	Fuel Supply Deficiency	N	Y	Y
EIA	9/12/2008 5:45	55.2	Primarily Southeast Texas, Louisiana, and Arkansas	Entergy Corporation (SERC)	SERC	Y	N	N	705,000	N/A	N/A	Hurricane Ike	N	Y	Y
EIA	9/12/2008 18:21	461.6	Greater Houston-Galveston Metro Area	CenterPoint Energy (TRE)	TRE	Y	Y	N	2,142,678	8,087	N/A	Hurricane Ike	Y	Y	N
EIA	9/12/2008 18:21	461.6	Greater Houston Area-Eastern Region of ERCOT	Electric Reliability Council of Texas (TRE)	TRE	Y	Y	N	2,504,366	N/A	N/A	Hurricane Ike	N	Y	N
EIA	9/12/2008 20:00	359.0	Galveston and Brazoria Counties	Texas New Mexico Power Company (TRE)	TRE	Y	Y	N	113,247	650	N/A	Hurricane Ike	Y	Y	N
EIA	9/13/2008 10:24	340.3	Southwest Louisiana	Louisiana Generating LLC (SERC)	SERC	Y	N	N	50,000	40	N/A	Hurricane Ike	Y	Y	N
EIA	9/13/2008 12:00	44.0	North, Central and East Texas	Oncor Electric Delivery Company LLC (TRE)	TRE	Y	Y	N	238,392	N/A	N/A	Hurricane Ike	N	Y	Y
EIA	9/13/2008 16:00	75.7	Texas and Louisana	American Electric Power CSWS (SPP)	SPP	Y	Y	N	184,501	N/A	N/A	Hurricane Ike	N	Y	Y
EIA	9/14/2008 6:30	8.1	Ohio, Kentucky, Indiana	Midwest ISO (RFC)	RFC	Y	Y	Y	875,000	N/A	N/A	Tropical Depression Ike	N	Y	Y
EIA	9/14/2008 7:30	103.5	Missouri and Illinois	Ameren Corporation (MRO)	MRO	Y	Y	Y	107,000	N/A	N/A	Hurricane Ike	N	Y	Y
EIA	9/14/2008 10:01	175.0	City of Owensboro, Kentucky	Owensboro Municipal Utilities (RFC)	RFC	Y	N	N	18,000	70	N/A	High Winds	Y	Y	N
EIA	9/14/2008 11:30	5.0	State of Kentucky	Louisville Gas/Kentucky Utilities (RFC)	RFC	Y	N	N	375,000	N/A	N/A	Tropical Depression Ike	N	Y	Y
EIA	9/14/2008 14:00	70.0	Dayton Ohio Area	Dayton Power and Light (RFC)	RFC	Y	Y	N	95,000	1,000	N/A	Hurricane Ike	Y	Y	Y
EIA	9/14/2008 16:00	151.0	Northern Indiana, Central and Central Southern Ohio	American Electric Company (RFC)	RFC	Y	Y	N	650,000	N/A	N/A	Wind Storm	N	Y	Y
EIA	9/14/2008 17:00	115.6	Western Pennsylvania	Pennsylvania Electric Company (RFC)	RFC	Y	Y	N	124,596	72	N/A	Wind Storm	Y	Y	Y
EIA	9/14/2008 17:00	192.2	Southern, Eastern, and Central Ohio	Ohio Edison Company (RFC)	RFC	Y	Y	Y	564,728	469	N/A	Wind Storm	Y	Y	N

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EIA	9/14/2008 17:00	178.3	Northeast Ohio	Cleveland Electric Illuminating Company (RFC)	RFC	Y	Y	Y	245,164	430	N/A	Wind Storm	Y	Y	N
EIA	9/14/2008 19:00	5.0	Allegheny and Beaver Counties in Pennsylvania	Duquesne Light Company (RFC)	RFC	Y	Y	N	105,000	600	N/A	Tropical Depression Ike	Y	Y	Y
EIA	9/15/2008 0:37	111.9	Western Pennsylvania	Allegheny Power (RFC)	RFC	Y	Y	N	160,875	546	N/A	Tropical Depression Ike	Y	Y	Y
EIA	9/22/2008 17:49	N/A	Island of Puerto Rico	Puerto Rico Electric Power Authority (PR)	PR	N	N	N	43,600	125	N/A	Shed Firm Load	N	Y	Y
EIA	9/30/2008 14:02	0.0	Plumas County, California	Pacific Gas and Electric Company (WECC)	WECC	Y	Y	N	10,000	30	N/A	Electrical System Separation	Y	Y	Y
EIA	10/2/2008 14:50	N/A	Louisiana	Dow Chemical Company (SERC)	SERC	Y	N	N	0	200	N/A	Load Shedding	N	Y	Y
EIA	10/25/2008 23:00	32.0	Connecticut	ISO New England (NPCC)	NPCC	Y	Y	N	52,000	N/A	N/A	Severe Storm	N	Y	Y
EIA	11/7/2008 11:13	0.7	Goleta and Santa Barbara Areas of Southern California	Southern California Edison (WECC)	WECC	Y	Y	N	140,000	250	N/A	Load Shedding	Y	Y	Y
EIA	11/7/2008 11:15	0.7	Southern California	California ISO (WECC)	WECC	Y	Y	N	400,000	430	N/A	Load Shedding	Y	Y	Y
EIA	11/11/2008 8:30	N/A	Island of Puerto Rico	Puerto Rico Electric Power Authority (PR)	PR	N	N	N	261,000	250	N/A	Shed Firm Load	N	Y	Y
EIA	11/15/2008 9:39	0.5	City of Los Angeles	Los Angeles Department of Water and Power (WECC)	WECC	Y	N	N	115,500	211	N/A	Brush Fire/Shed Firm Load	Y	Y	Y
EIA	12/2/2008 4:30	2.5	St. Louis, Missouri	Midwest ISO (RFC)	RFC	Y	Y	Y	53,000	135	N/A	Fire/Load Shedding	Y	Y	Y
EIA	12/9/2008 17:27	10.8	Central New Jersey	Jersey Central Power and Light (RFC)	RFC	Y	Y	N	156,729	438	N/A	Lines Loss/Transmission	Y	Y	Y
EIA	12/10/2008 17:09	3.3	Southern Oregon	PacifiCorp (WECC)	WECC	Y	N	N	3	32	N/A	Equipment Failure/Made Public Appeal	Y	Y	Y
EIA	12/11/2008 9:00	63.0	Southern Louisiana, Southern and Central Mississippi	Entergy Corporation (SERC)	SERC	Y	N	N	91,300	N/A	N/A	Snow Storm	N	Y	Y
EIA	12/11/2008 18:00	78.0	Northern Dutchess County and Western Ulster County in the Mid-Hudson Region of New York State	Central Hudson Gas and Electric (NPCC)	NPCC	Y	Y	N	60,000	N/A	N/A	Ice Storm	N	Y	Y
EIA	12/12/2008 1:00	239.0	New England	ISO New England (NPCC)	NPCC	Y	Y	N	970,000	N/A	N/A	Ice Storm	N	Y	N
EIA	12/12/2008 2:38	178.8	Eastern New York	National Grid (NPCC)	NPCC	Y	Y	N	190,000	200	N/A	Ice Storm	Y	Y	N
EIA	12/12/2008 8:45	49.1	Southern and Central Maine	Central Maine Power Company (NPCC)	NPCC	Y	Y	N	169,757	N/A	N/A	Ice Storm	N	Y	Y
EIA	12/13/2008 15:30	185.8	Humboldt Area of California	Pacific Gas and Electric Company (WECC)	WECC	Y	Y	N	0	5	N/A	Declared Stage 1 Electric Emergency/Made Public Appeal	N	Y	N
EIA	12/19/2008 1:02	5.3	East of Oroville, California	Pacific Gas and Electric Company (WECC)	WECC	Y	Y	N	638	1	N/A	Electrical System Separation	Y	Y	Y
EIA	12/19/2008 8:30	75.5	Indiana, Michigan and Northwest Ohio	American Electric Power (RFC)	RFC	Y	Y	N	140,000	N/A	N/A	Ice Storm	N	Y	Y
EIA	12/19/2008 9:00	23.3	Northwest Indiana	Midwest ISO (RFC)	RFC	Y	Y	Y	50,000	N/A	N/A	Ice Storm	N	Y	Y

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EIA	12/26/2008 11:40	3.9	Orangevale Area of Sacramento, California	Sacramento Municipal Utility District (WECC)	WECC	Y	N	N	50,000	110	N/A	Load Shedding	Y	Y	Y
EIA	12/26/2008 18:13	22.8	Island of Oahu, Hawaii	Hawaiian Electric Company, Inc. (HI)		N	N	N	294,000	1,060	N/A	Lightning	Y	Y	Y
EIA	12/27/2008 16:00	127.5	Southeastern Michigan	DTE Energy (RFC)	RFC	Y	Y	Y	247,847	N/A	N/A	Wind Storm	N	Y	Y
EIA	12/28/2008 4:45	85.3	Michigan Lower Peninsula	Consumers Energy (RFC)	RFC	Y	Y	Y	210,517	N/A	N/A	Wind Storm	N	Y	Y
EIA	12/28/2008 11:45	11.7	Michigan Lower Peninsula	Midwest ISO (RFC)	RFC	Y	Y	Y	230,000	N/A	N/A	Wind Storm	N	Y	Y
EIA	12/30/2008 16:02	0.6	Crawfordsville, Indiana	Crawfordsville Electric Light and Power (RFC)	RFC	Y	Y	Y	9,700	41	N/A	Shed Firm Load	Y	Y	Y
EIA	1/6/2010 18:00	48.0	Southwest Louisiana	Southwest Louisiana Electric Membership Corporation (SERC)	SERC	Y	N	N	N/A	N/A	N/A	Made Public Appeals	N	Y	Y
EIA	1/11/2010 3:45	6.2	Northern and Central Florida	Progress Energy Florida (FRCC/SERC)	FRCC/SERC	Y	N	N	N/A	N/A	N/A	Interruptible Load Shed/Made Public Appeals	N	Y	Y
EIA	1/18/2010 11:30	236.5	Northern and Central California	Pacific Gas and Electric Company (WECC)	WECC	Y	Y	N	1,700,000	290	N/A	Severe Storm	Y	Y	N
EIA	1/19/2010 7:30	4.9	San Francisco	California ISO (WECC)	WECC	Y	Y	N	30,000	300	N/A	Severe Storm	Y	Y	Y
EIA	1/19/2010 14:30	24.5	San Diego and Orange Counties	San Diego Gas & Electric Company (WECC)	WECC	Y	Y	N	50,000	2,650	N/A	Severe Storm	Y	Y	Y
EIA	1/20/2010 13:00	101.2	City of Los Angeles, California	Los Angeles Department of Water and Power (WECC)	WECC	Y	N	N	147,223	N/A	N/A	Severe Storm	N	Y	Y
EIA	1/28/2010 12:00	120.0	Oklahoma	American Electric Power (SPP)	SPP	Y	Y	N	68,705	N/A	N/A	Ice Storm	N	Y	Y
EIA	2/1/2010 14:32	2.5	Oklahoma	Western Farmers Electric Cooperative (SPP)	SPP	Y	Y	N	0	30	N/A	Ice Storm/Electrical System Separation	Y	Y	Y
EIA	2/5/2010 15:00	193.0	Southern NJ	Atlantic City Electric (RFC)	RFC	Y	Y	N	221,000	N/A	N/A	Winter Storm	N	Y	N
EIA	2/5/2010 18:48	46.2	North and South Carolina	Duke Energy Carolinas (SERC)	SERC	Y	N	N	74,000	500	N/A	Winter Storm	Y	Y	Y
EIA	2/5/2010 19:00	164.8	District of Columbia, Prince Georges and Montgomery Co. MD	Potomac Electric Power Co (RFC)	RFC	Y	Y	N	97,651	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/5/2010 22:30	157.5	Southwestern Pennsylvania	Duquesne Light Company (RFC)	RFC	Y	Y	N	57,000	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/5/2010 23:30	27.1	Indiana, Ohio, W. Virginia and Virginia	American Electric Power (RFC)	RFC	Y	Y	N	102,225	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/6/2010 2:30	28.5	Virginia, North Carolina	Dominion (SERC)	SERC	Y	Y	N	104,736	600	N/A	Winter Storm	Y	Y	Y
EIA	2/6/2010 8:00	1.0	Delmarva Peninsula	Delmarva Power & Light Company (RFC)	RFC	Y	Y	N	58,491	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/9/2010 18:00	118.0	Southeastern Pennsylvania	Exelon Corporation (RFC)	RFC	Y	Y	N	223,000	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/11/2010 12:00	105.0	Dallas/Fort Worth and East Texas	Oncor Electric Delivery Company (TRE)	TRE	Y	Y	N	500,000	N/A	N/A	Winter Storm	N	Y	Y

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EIA	2/12/2010 5:00	12.0	East Texas, Western Arkansas, Northern Lousiania	American Electric Power (SPP)	SPP	Y	Y	N	52,999	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/14/2010 10:00	2.0	Western Pennsylvania nd Northeast Central WV	Allegheny Power (RFC)	RFC	Y	Y	N	190,000	900	N/A	Winter Storm	Y	Y	Y
EIA	2/19/2010 20:30	7.5	San Joaquin Field Division/Bakersfield, CA	California Department of Water Resources (WECC)	WECC	Y	Y	N	N/A	1,000	N/A	Firm System Load Shed	Y	Y	Y
EIA	2/23/2010 22:00	42.0	Upstate New York	Central Hudson Gas & Electric Corp (NPCC)	NPCC	Y	Y	N	150,000	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/25/2010 0:01	45.0	Southeastern New York, Northern New Jersey	Orange and Rockland Utilities Inc		Y	Y	N	65,000	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/25/2010 17:00	122.0	New York City	Consolidated Edison of NY (NPCC)	NPCC	Y	Y	N	55,000	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/25/2010 23:53	88.8	Southern Maine and New Hampshire	ISO New England (NPCC)	NPCC	Y	Y	N	509,606	510	N/A	Winter Storm	Y	Y	Y
EIA	3/13/2010 1:00	89.7	Southeasten Pennsylvania	Exelon Corporation/PECO (RFC)	RFC	Y	Y	N	177,528	N/A	N/A	High Winds and rain	N	Y	Y
EIA	3/13/2010 12:00	56.1	Connecticut	ISO New England (NPCC)	NPCC	Y	Y	N	50,246	50	N/A	High Winds and Rain	Y	Y	Y
EIA	3/13/2010 15:00	97.0	Long Island	Long Island Power Authority (NPCC)	NPCC	Y	Y	N	153,000	N/A	N/A	High Winds and Rain	N	Y	Y
EIA	3/13/2010 16:00	56.0	Central New Jersey and Northern New Jersey	Jersey Central Power and Light Company (RFC)	RFC	Y	Y	N	180,000	N/A	N/A	High Winds and Flooding	N	Y	Y
EIA	3/13/2010 18:00	163.0	Southern, Central and Northern New Jersey	Public Service Electric & Gas Company (RFC)	RFC	Y	Y	N	360,000	100	N/A	High Winds and Rain	Y	Y	Y
EIA	3/13/2010 18:00	159.0	New York City and Westchester County	Consolidated Edison of NY (NPCC)	NPCC	Y	Y	N	173,000	N/A	N/A	High Winds and Rain	N	Y	Y
EIA	3/31/2010 23:59	0.9	San Diego and Orange Counties	San Diego Gas & Electric Company (WECC)	WECC	Y	Y	N	290,000	324	N/A	Shed Firm Load	Y	Y	Y
EIA	3/31/2010 23:59	0.7	San Diego	California Independent System Operator (WECC)	WECC	Y	Y	N	N/A	324	N/A	Shed Firm Load	Y	Y	Y
EIA	4/16/2010 17:15	47.8	Southwestern Pennsylvania	Allegheny Power (RFC)	RFC	Y	Y	N	120,000	15	N/A	Severe Thunderstorms	Y	Y	Y
EIA	4/21/2010 15:05	4.9	Iberville, Parish, Louisiana	Dow Chemical Co (SERC)	SERC	Y	N	N	N/A	N/A	N/A	Generator Tripped	N	Y	Y
EIA	4/27/2010 14:55	N/A	Rocky Mount, NC	North Carolina Eastern Municipal Power Agency (SERC)	SERC	Y	N	N	29,376	N/A	N/A	Transmission System Interruption	N	Y	Y
EIA	5/2/2010 14:40	172.8	Tennessee and Mississippi	Tennesse Valley Authority (SERC)	SERC	Y	N	N	50,500	N/A	N/A	Thunderstorms	N	Y	N
EIA	5/18/2010 8:15	14.5	Central California	California Department of Water Resources (WECC)	WECC	Y	Y	N	N/A	318	N/A	Breakers Tripped	Y	Y	Y
EIA	5/26/2010 11:45	3.2	Maryland, Pennsylvania, West Virginia, Virginia	Allegheny Power (RFC, SERC)	RFC, SERC	Y	Y	N	N/A	N/A	N/A	Made Public Appeal - System Drill	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	6/1/2010 22:03	386.5	Southwestern Indiana	Southern Indiana Gas and Electric Company (RFC)	RFC	Y	Y	Y	1	500	N/A	Firm Load Shed	Y	Y	N
EIA	6/2/2010 20:18	35.7	San Antonio, TX	CPS Energy (TRE)	TRE	Y	Y	N	126,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	6/6/2010 4:45	0.8	Northern California	Pacific Gas and Electric (WECC)	WECC	Y	Y	N	2,650	3	N/A	Electric System Separation	Y	Y	Y
EIA	6/7/2010 18:29	6.5	Denver Metropolitan Area	Public Service Company of Colorado (WECC)	WECC	Y	N	N	31,000	300	N/A	Firm Load Shed	Y	Y	Y
EIA	6/8/2010 11:00	6.0	Southeastern Texas	Centerpoint Energy (TRE)	TRE	Y	Y	N	79,741	N/A	N/A	Thunderstorms	N	Y	Y
EIA	6/9/2010 14:18	0.7	Edenton, NC	North Carolina Eastern Municipal Power Agency (SERC)	SERC	Y	N	N	4,196	N/A	N/A	Transmission System Interruption	N	Y	Y
EIA	6/16/2010 11:11	0.4	New York (Rockland and Orange Counties)	Orange and Rockland Utilities (NPCC)	NPCC	Y	Y	N	N/A	N/A	N/A	Voltage Reduction (System Test)	N	Y	Y
EIA	6/17/2010 8:30	9.3	Morgan City, LA	Louisiana Energy and Power Authority (SPP)	SPP	Y	Y	N	N/A	N/A	N/A	Made Public Appeal	N	Y	Y
EIA	6/17/2010 9:30	7.8	Southern Louisiana	Entergy (SERC)	SERC	Y	N	N	N/A	N/A	N/A	Made Public Appeal	N	Y	Y
EIA	6/17/2010 9:30	7.2	Southern Louisiana	Cleco Power LLC (SERC)	SERC	Y	Y	N	N/A	N/A	N/A	Made Public Appeal	N	Y	Y
EIA	6/17/2010 9:30	7.2	Southwestern Louisiana	Southwest Louisiana Electric Membership Corporation (SPP)	SPP	Y	Y	N	N/A	N/A	N/A	Made Public Appeal	N	Y	Y
EIA	6/17/2010 10:49	0.2	Eastern Montana	Western Area Power Administration (MRO)	MRO	Y	Y	Y	N/A	N/A	N/A	Electrical System Separation	N	Y	Y
EIA	6/18/2010 15:30	33.0	Northwest Indiana	Northern Indiana Public Service Company (RFC)	RFC	Y	Y	Y	94,345	N/A	N/A	Thunderstorms	N	Y	Y
EIA	6/18/2010 16:00	45.0	Chicago, IL	Commonwealth Edison (RFC)	RFC	Y	Y	N	400,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	6/18/2010 19:00	10.0	Southern Portion of Lower Michigan	Consumers Energy (RFC)	RFC	Y	Y	Y	100,000	N/A	N/A	Thunderstorms	N	Y	Y
EIA	6/18/2010 20:00	62.7	Indiana, Michigan	American Electric Power (RFC)	RFC	Y	Y	N	79,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	6/18/2010 20:00	95.5	Detroit, MI	Detroit Edison (RFC)	RFC	Y	Y	Y	150,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	6/21/2010 13:48	30.7	Cincinnati, OH	Duke Energy Midwest (RFC)	RFC	Y	Y	Y	50,636	400	N/A	Thunderstorms	Y	Y	Y
EIA	6/22/2010 15:34	3.4	West/Central Arkansas	Entergy (SERC)	SERC	Y	N	N	25,159	84	N/A	Made Public Appeal/Transmission Equipment Failure	Y	Y	Y
EIA	6/23/2010 17:00	44.7	Chicago, IL	Commonwealth Edison (RFC)	RFC	Y	Y	N	300,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	6/23/2010 17:48	8.5	Northwest Indiana	Northern Indiana Public Service Company (RFC)	RFC	Y	Y	Y	53,000	N/A	N/A	Thunderstorms	N	Y	Y
EIA	6/24/2010 15:00	117.0	Southwestern New Jersey	Atlantic City Electric (RFC)	RFC	Y	Y	N	150,000	N/A	N/A	Thunderstorms	N	Y	Y
EIA	6/24/2010 15:30	128.5	Southeastern Pennsylvania	PECO (RFC)	RFC	Y	Y	N	355,000	N/A	N/A	Thunderstorms	N	Y	Y
EIA	6/25/2010 23:36	2.0	Northern California	Pacific Gas and Electric (WECC)	WECC	Y	Y	N	N/A	N/A	N/A	Electrical System Separation	N	Y	Y
EIA	7/6/2010 3:47	0.8	Newark, DE	Delmarva Power & Light Company (RFC)	RFC	Y	Y	N	18,400	95	N/A	Transformer Outage	Y	Y	Y
EIA	7/7/2010 16:13	6.3	York, South Central Pennsylvania	PJM Interconnection, LLC (RFC)	RFC	Y	Y	N	43,903	N/A	N/A	Loss of Transmission Equipment	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	7/15/2010 19:00	100.5	Southeastern Michigan	Detroit Edison (RFC)	RFC	Y	Y	Y	127,534	540	N/A	Severe Weather	Y	Y	Y
EIA	7/17/2010 20:30	49.5	Minnesota	Xcel Energy (MRO)	MRO	Y	Y	Y	63,000	N/A	N/A	Strong Winds, Tornadoes	N	Y	Y
EIA	7/21/2010 18:44	1.3	Connecticut	ISO New England (NPCC)	NPCC	Y	Y	N	50,100	N/A	N/A	Thunderstorms	N	Y	Y
EIA	7/23/2010 10:00	37.9	Northern Utah	Pacificorp (WECC)	WECC	Y	N	N	N/A	N/A	N/A	Made Public Appeals	N	Y	Y
EIA	7/23/2010 19:30	71.0	Southeastern Michigan	Detroit Edison (RFC)	RFC	Y	Y	Y	82,000	400	N/A	Severe Weather	Y	Y	Y
EIA	7/25/2010 15:10	128.3	Washington, DC Region	Potomac Electric Power Co (RFC)	RFC	Y	Y	N	297,700	N/A	N/A	Severe Weather	N	Y	Y
EIA	7/25/2010 15:20	50.7	Central Maryland	Baltimore Gas and Electric (RFC)	RFC	Y	Y	N	124,000	480	N/A	Severe Weather	Y	Y	Y
EIA	7/25/2010 16:11	3.9	Northern Virginia	Dominion - Virginia Power (SERC)	SERC	Y	Y	N	81,000	900	N/A	Severe Weather	Y	Y	Y
EIA	7/29/2010 17:43	2.4	Virginia	Dominion - Virginia Power (SERC)	SERC	Y	Y	N	55,000	N/A	N/A	Thunderstorms	N	Y	Y
EIA	7/29/2010 18:39	0.8	Southern California	Southern California Edison Company (WECC)	WECC	Y	Y	N	N/A	522	N/A	Shed Interruptible Load, Wildfire	Y	Y	Y
EIA	7/29/2010 18:39	0.8	Southern California	California Independent System Operator (WECC)	WECC	Y	Y	N	N/A	522	N/A	Shed Interruptible Load, Wildfire	Y	Y	Y
EIA	8/2/2010 12:00	11.0	Central California	California Department of Waters Resources (WECC)	WECC	Y	Y	N	N/A	N/A	N/A	Fuel Supply Deficiency (Hydro)	N	Y	Y
EIA	8/2/2010 12:45	46.3	Southern Louisiana	Cleco Power LLC (SERC)	SERC	Y	Y	N	N/A	N/A	N/A	Made Public Appeals	N	Y	Y
EIA	8/2/2010 12:45	46.3	Southern Louisiana	Entergy (SERC)	SERC	Y	N	N	N/A	N/A	N/A	Made Public Appeals	N	Y	Y
EIA	8/2/2010 12:45	46.3	Southwestern Louisiana	Southwest Louisiana Electric Membership Corporation (SERC)	SERC	Y	N	N	N/A	N/A	N/A	Made Public Appeals	N	Y	Y
EIA	8/2/2010 12:45	46.3	Southern Louisiana	Lafayette Utilities Systems (SPP)	SPP	Y	Y	N	N/A	N/A	N/A	Made Public Appeals	N	Y	Y
EIA	8/4/2010 12:00	10.0	Northern Texas, Eastern New Mexico	Southwestern Public Service Company (SPP)	SPP	Y	Y	N	N/A	N/A	N/A	Made Public Appeals	N	Y	Y
EIA	8/4/2010 16:45	55.3	Western Pennsylvania, Northwestern and Central West Virginia	Allegheny Power (RFC)	RFC	Y	Y	N	11,186	60	N/A	Thunderstorms	Y	Y	Y
EIA	8/4/2010 17:00	35.0	Ohio, West Virginia, Kentucky	American Electric Power (RFC)	RFC	Y	Y	N	37,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/5/2010 15:30	6.5	District of Columbia, Maryland	Potomac Electric Power Co (RFC)	RFC	Y	Y	N	76,729	N/A	N/A	Thunderstorms	N	Y	Y
EIA	8/5/2010 15:54	56.1	Northern Virginia	Dominion - Virginia Power (RFC)	RFC	Y	Y	N	145,157	N/A	N/A	Thunderstorms	N	Y	Y
EIA	8/9/2010 12:00	168.0	Upstate New York	AES Greenidge and Cayuga0RFC)	RFC	Y	Y	N	N/A	N/A	N/A	Fuel Supply Defiency	N	Y	N
EIA	8/11/2010 15:21	N/A	Ohio	American Electric Power (RFC)	RFC	Y	Y	N	57,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/12/2010 6:45	14.3	District of Columbia, Maryland	Potomac Electric Power Co. (RFC)	RFC	Y	Y	N	101,003	N/A	N/A	Severe Weather	N	Y	Y

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EIA	8/12/2010 8:21	2.7	Central Nebraska	Nebraska Public Power District (SPP)	SPP	Y	Y	N	N/A	65	N/A	Made Public Appeals	N	Y	Y
EIA	8/12/2010 15:42	6.5	City of Oshkosh, Wisconsin	Wisconsin Public Service (MRO)	MRO	Y	Y	Y	7,600	30	N/A	Made Public Appeals	N	Y	Y
EIA	8/19/2010 18:00	93.5	Southeastern Michigan	Detroit Edison (RFC)	RFC	Y	Y	Y	80,000	340	N/A	Severe Weather	Y	Y	Y
EIA	8/23/2010 17:50	15.7	Houston, Texas	CenterPoint Energy (TRE)	TRE	Y	Y	N	81,586	746	N/A	Severe Weather	Y	Y	Y
EIA	9/1/2010 10:20	2.4	Pittsburg (Bay Area), California	Pacific Gas and Electric (WECC)	WECC	Y	Y	N	15,000	31	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	9/7/2010 14:02	11.4	San Antonio, Texas	CPS Energy (TRE)	TRE	Y	Y	N	340,350	N/A	N/A	Tropical Storm	N	Y	Y
EIA	9/20/2010 17:00	0.5	King George County, Virginia	Birchwood Power Facility (SERC)	SERC	Y	Y	N	N/A	N/A	N/A	Low Flying Helicopter	N	Y	Y
EIA	9/21/2010 21:31	17.0	Central and Southern Michigan	Consumers Energy (RFC)	RFC	Y	Y	Y	138,000	N/A	N/A	Thunderstorms	N	Y	Y
EIA	9/22/2010 6:12	16.8	Bakersfield, California	California Department of Water Resources (WECC)	WECC	Y	Y	N	N/A	526	N/A	Firm Load Shed	Y	Y	Y
EIA	9/22/2010 16:08	79.9	City of Pittsburgh, Pennsylvania	Duquesne Light Company (RFC)	RFC	Y	Y	N	52,000	156	N/A	Thunderstorms	Y	Y	Y
EIA	9/22/2010 17:38	53.9	Western Pennsylvania	Allegheny Power (RFC)	RFC	Y	Y	N	82,861	389	N/A	Thunderstorms	Y	Y	Y
EIA	9/27/2010 15:15	3.0	Central and Southern California	Southern California Edison Company (WECC)	WECC	Y	Y	N	N/A	595	N/A	Interruptible Load Shed	N	Y	Y
EIA	10/5/2010 5:45	48.2	City of Los Angeles, California	Los Angeles Department of Water and Power (WECC)	WECC	Y	N	N	73,514	N/A	N/A	Rain and High Winds	N	Y	Y
EIA	10/26/2010 9:00	50.0	Northern Illinois	Commonwealth Edison (RFC)	RFC	Y	Y	N	192,106	N/A	N/A	Thunderstorms	N	Y	Y
EIA	10/26/2010 20:00	50.0	Minnesota	Xcel Energy/Northern States Power Company (MRO)	MRO	Y	Y	Y	70,000	N/A	N/A	High Winds	N	Y	Y
EIA	10/27/2010 4:00	8.0	Northeast and North Central Wisconsin	Wisconsin Public Service Corporation (MRO)	MRO	Y	Y	Y	63,000	N/A	N/A	High Winds	N	Y	Y
EIA	10/27/2010 8:00	47.0	Michigan's Northerly Lower Peninsula	Consumers Energy (RFC)	RFC	Y	Y	Y	285,000	240	N/A	High Winds	Y	Y	Y
EIA	10/27/2010 17:00	35.0	Northern Illinois	Commonwealth Edison (RFC)	RFC	Y	Y	N	127,000	N/A	N/A	High Winds	N	Y	Y
EIA	10/27/2010 17:16	0.2	Northern California	Pacific Gas and Electric (WECC)	WECC	Y	Y	N	2,674	16	N/A	Electrical System Separation-Islanding	Y	Y	Y
EIA	10/31/2010 22:26	3.3	Bakersfield, California	California Department of Water Resources (WECC)	WECC	Y	Y	N	N/A	500	N/A	Firm System Load Loss	Y	Y	Y
EIA	11/4/2010 9:46	1.0	Rock Springs, Wyoming	PacifiCorp (WECC)	WECC	Y	N	N	N/A	N/A	N/A	Transmission Equipment Failure/Interruptible Load Shed	N	Y	Y
EIA	11/6/2010 15:53	2.3	Northern California	Pacific Gas and Electric (WECC)	WECC	Y	Y	N	4	20	N/A	Electrical System Separation - Islanding	Y	Y	Y
EIA	11/8/2010 6:47	11.2	Maine	ISO New England (NPCC)	NPCC	Y	Y	N	60,863	N/A	N/A	Snow and High Winds	N	Y	Y
EIA	11/13/2010 15:00	31.0	Minnesota	Xcel Energy/Northern States Power Company (MRO)	MRO	Y	Y	Y	60,000	N/A	N/A	Winter Storm	N	Y	Y

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EIA	11/15/2010 23:00	3.2	Puget Sound Region	Puget Sound Energy (WECC)	WECC	Y	N	N	149,256	391	N/A	High Winds	Y	Y	Y
EIA	11/21/2010 1:39	87.1	Northern and Central California	Pacific Gas and Electric (WECC)	WECC	Y	Y	N	60,000	75	N/A	Winter Storm	Y	Y	Y
EIA	11/22/2010 23:00	45.0	Puget Sound Region, Washington	Puget Sound Energy (WECC)	WECC	Y	N	N	123,535	420	N/A	Winter Storm	Y	Y	Y
EIA	11/23/2010 14:01	4.2	Northern California	Pacific Gas and Electric (WECC)	WECC	Y	Y	N	7,077	22	N/A	Electrical System Separation - Islanding	Y	Y	Y
EIA	12/3/2010 21:32	4.5	California	Pacific Gas and Electric (WECC)	WECC	Y	Y	N	7,077	22	N/A	Electrical System Separation - Islanding	Y	Y	Y
EIA	12/12/2010 16:30	69.5	Southeastern Michigan	Detroit Edison (RFC)	RFC	Y	Y	Y	60,175	210	N/A	Severe Weather	Y	Y	Y
EIA	12/14/2010 7:20	0.1	California	Pacific Gas and Electric (WECC)	WECC	Y	Y	N	6,635	9	N/A	Electrical System Separation - Islanding	Y	Y	Y
EIA	12/14/2010 7:36	25.4	Southern California	California Department of Water Resources (WECC)	WECC	Y	Y	N	N/A	464	N/A	Transmission Equipment/Firm System Load	Y	Y	Y
EIA	12/18/2010 5:00	41.0	Redmond, Washington	Puget Sound Energy (WECC)	WECC	Y	N	N	92,090	184	N/A	Severe Weather	Y	Y	Y
EIA	12/26/2010 8:15	8.0	Carolina	Progress Energy Carolinas (SERC)	SERC	Y	N	N	42,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	12/30/2010 14:00	304.0	New York	AES Cayuga (RFC)	RFC	Y	Y	N	N/A	300	N/A	Fuel Supply Deficiency	N	Y	N
EIA	1/11/2011 23:08	N/A	Athens, New York	New Athens Generating Co. LLC(NPCC)	NPCC	Y	Y	N	0	0	N/A	Electrical Fault at Generator	N	Y	Y
EIA	1/12/2011 6:00	8.0	Massachusetts	National Grid(NPCC)	NPCC	Y	Y	N	80,000	N/A	N/A	Winter Storm	N	Y	Y
EIA	1/13/2011 7:21	0.9	North Florida	JEA(FRCC)	FRCC	Y	N	N	20,900	150	N/A	Firm System Load Shed	Y	Y	Y
EIA	1/26/2011 17:00	111.0	Montgomery and Prince George's County, Maryland and District of Columbia	Potomac Electric Power Co/ PEPCO Holdings Inc.(RFC)	RFC	Y	Y	N	210,000	N/A	N/A	Winter Storm	N	Y	Y
EIA	1/26/2011 18:28	70.5	Maryland	Baltimore Gas and Electric Company(RFC)	RFC	Y	Y	N	234,326	N/A	N/A	Winter Storm	N	Y	Y
EIA	1/26/2011 19:43	22.6	Northern Virginia	Dominion - Virginia Power(SERC)	SERC	Y	Y	N	150,084	600	N/A	Winter Storm	Y	Y	Y
EIA	1/27/2011 9:30	N/A	Hockessin, Delaware	Delmarva Power & Light Company(RFC)	RFC	Y	Y	N	0	0	N/A	Vandalism	N	Y	Y
EIA	1/27/2011 17:00	60.0	Central New York	AES Greenidge, LLC(NPCC)	NPCC	Y	Y	N	N/A	108	N/A	Fuel Supply Deficiency (Coal)	N	Y	Y
EIA	1/31/2011 22:00	62.0	Southwestern Ohio and Indiana	Duke Energy Midwest(RFC)	RFC	Y	Y	Y	272,880	996	N/A	Ice Storm	Y	Y	Y
EIA	2/1/2011 15:00	45.0	Indiana, Ohio	American Electric Power - Ohio(RFC)	RFC	Y	Y	N	158,013	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/1/2011 21:00	17.0	Northern Illinois	Exelon Corp/ComEd - Commonwealth Edison(RFC)	RFC	Y	Y	N	190,000	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/2/2011 3:00	69.0	Philadelphia area, Pennsylvania	Exelon Corporation/PECO(RFC)	RFC	Y	Y	N	213,000	N/A	N/A	Winter Storm	N	Y	Y
EIA	2/2/2011 5:43	28.3	Texas	ERCOT ISO(TRE)	TRE	Y	Y	N	1,069,730	4,000	N/A	Generation Inadequacy/Load Shed	N	Y	N
EIA	2/2/2011 6:22	3.6	Central Arizona	Salt River Project(WECC)	WECC	Y	N	N	69,000	3,963	N/A	Generation Inadequacy/Load Shed	N	Y	Y

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EIA	2/2/2011 7:24	15.0	Dona Ana and El Paso Counties, Texas and Hudspeth County, New Mexico	El Paso Electric Company(WECC)	WECC	Y	N	N	178,000	280	N/A	Generation Inadequacy/Load Shed	N	Y	Y
EIA	2/2/2011 17:00	29.0	Texas Panhandle, Southeastern New Mexico	Southwestern Public Service(SPP)	SPP	Y	Y	N	N/A	N/A	N/A	Fuel Supply Deficiency (Natural Gas)	N	Y	Y
EIA	2/3/2011 15:00	21.0	San Diego area, California	San Diego Gas and Electric Company(WECC)	WECC	Y	Y	N	N/A	N/A	N/A	Fuel Supply Deficiency (Natural Gas)	N	Y	Y
EIA	2/3/2011 22:04	14.5	Texas	ERCOT ISO(TRE)	TRE	Y	Y	N	86,013	400	N/A	Generation Inadequacy/Load Shed	N	Y	Y
EIA	2/9/2011 3:45	5.4	Western Houston, Texas	CenterPoint Energy(TRE)	TRE	Y	Y	N	60,000	399	N/A	Winter Storm	Y	Y	Y
EIA	2/9/2011 16:30	20.1	Texas	ERCOT ISO(TRE)	TRE	Y	Y	N	N/A	N/A	N/A	Cold Weather Event	N	Y	Y
EIA	2/17/2011 1:25	56.8	Northern and Central California	Pacific Gas and Electric(WECC)	WECC	Y	Y	N	80,000	91	N/A	Major Storm	Y	Y	Y
EIA	2/19/2011 12:30	15.5	Philadelphia area, Pennsylvania	Exelon Corporation/PECO(RFC)	RFC	Y	Y	N	118,000	N/A	N/A	Major Storm	N	Y	Y
EIA	2/20/2011 16:00	72.0	Southern Lower Peninsula, Michigan	Consumers Energy(RFC)	RFC	Y	Y	Y	160,000	262	N/A	Winter Storm	Y	Y	Y
EIA	2/24/2011 16:51	0.1	Arkansas	American Electric Power (CSWS-SPP)(SPP)	CSWS-SPP	Y	Y	N	N/A	4	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	2/25/2011 8:00	81.5	Northern and Central California	Pacific Gas and Electric(WECC)	WECC	Y	Y	N	80,000	91	N/A	Winter Storm	Y	Y	Y
EIA	2/25/2011 15:20	2.7	Virginia	Dominion - Virginia Power(SERC)	SERC	Y	Y	N	50,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	2/25/2011 15:23	50.6	Maryland	Baltimore Gas & Electric(RFC)	RFC	Y	Y	N	93,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	3/1/2011 8:00	97.5	Western New York	AES Somerset(NPCC)	NPCC	Y	Y	N	N/A	675	N/A	Fuel Supply Deficiency (Coal)	N	Y	Y
EIA	3/8/2011 8:00	241.0	Western New York	AES Somerset(NPCC)	NPCC	Y	Y	N	N/A	676	N/A	Fuel Supply Deficiency (Coal)	N	Y	N
EIA	3/11/2011 7:02	2.2	Humboldt and Eureka, California	Pacific Gas and Electric(WECC)	WECC	Y	Y	N	6,800	15	N/A	Generation Inadequacy/Load Shed	N	Y	Y
EIA	3/13/2011 14:20	25.4	Oregon	PacifiCorp(WECC)	WECC	Y	N	N	9,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	3/19/2011 23:56	115.2	Northern and Central California	Pacific Gas and Electric(WECC)	WECC	Y	Y	N	128,000	91	N/A	Major Storm	Y	Y	Y
EIA	3/20/2011 9:44	24.3	Los Angeles, California	Los Angeles Department of Water and Power(WECC)	WECC	Y	N	N	79,000	N/A	N/A	Major Storm	N	Y	Y
EIA	3/21/2011 12:35	2.2	Southern California	Southern California Edison Company (SCE)(WECC)	WECC	Y	Y	N	54,332	150	N/A	Major Storm	Y	Y	Y
EIA	3/23/2011 18:30	10.4	Indiana. Kentucky, Michigan, Ohio, Tennessee, Virginia, West Virginia	American Electric Power - AEP(RFC)	RFC	Y	Y	N	60,596	N/A	N/A	Major Storm	N	Y	Y
EIA	3/27/2011 13:27	3.6	Sonoma and Central Valley, California	Pacific Gas and Electric(WECC)	WECC	Y	Y	N	165,000	295	N/A	Transmission Level Outage	Y	Y	Y
EIA	3/31/2011 11:30	9.0	Greater Tampa Bay, Florida	Tampa Electric Company(FRCC)	FRCC	Y	N	N	87,000	206	N/A	Severe Weather	Y	Y	Y
EIA	3/31/2011 14:30	33.5	Central and Western Florida	Progress Energy Florida (PEF)(FRCC)	FRCC	Y	N	N	50,000	N/A	N/A	Severe Weather	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	4/4/2011 11:47	84.2	Memphis, Tennessee	Tennessee Valley Authority(SERC)	SERC	Y	N	N	63,000	359	N/A	Severe Weather	Y	Y	Y
EIA	4/4/2011 13:00	11.0	Shelby County, Tennessee	Memphis Light Gas and Water Division(SERC)	SERC	Y	N	N	63,000	300	N/A	Severe Weather	Y	Y	Y
EIA	4/4/2011 14:00	82.0	Davidson Count, Tennessee	Tennessee Valley Authority(SERC)	SERC	Y	N	N	73,000	300	N/A	Severe Weather	Y	Y	Y
EIA	4/4/2011 19:00	25.0	Southeast Arkansas, Southeast Louisiana, Western Mississippi, Eastern Texas	Entergy Corporation(SERC)	SERC	Y	N	N	74,645	N/A	N/A	Severe Weather	N	Y	Y
EIA	4/4/2011 19:00	17.0	Kentucky, West Virginia	American Electric Power (AEP)(RFC)	RFC	Y	Y	N	52,920	N/A	N/A	Severe Weather	N	Y	Y
EIA	4/4/2011 21:00	26.5	Alabama, Florida, Georgia, Mississippi	Southern Company(SERC)	SERC	Y	N	N	303,434	674	N/A	Severe Weather	Y	Y	Y
EIA	4/5/2011 2:00	69.0	North Carolina, South Carolina	Duke Energy Carolinas(SERC)	SERC	Y	N	N	256,000	1,200	N/A	Severe Weather	Y	Y	Y
EIA	4/16/2011 14:16	26.2	Central and Eastern North Carolina	Progress Energy Carolinas Inc(SERC)	SERC	Y	N	N	220,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	4/19/2011 20:00	2.0	Illinois	Ameren Illinois(SERC)	SERC	Y	Y	Y	80,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	4/19/2011 22:44	3.3	Memphis, Tennessee	Memphis Light Gas and Water Division(SERC)	SERC	Y	N	N	64,000	100	N/A	Severe Weather	Y	Y	Y
EIA	4/19/2011 23:02	42.5	Memphis, Tennessee	Tennessee Valley Authority(SERC)	SERC	Y	N	N	105,000	300	N/A	Severe Weather	Y	Y	Y
EIA	4/19/2011 23:13	20.0	Osceola, Arkansas	Constellation Energy Control and Dispatch(SERC)	SERC	Y	N	N	N/A	22	N/A	Severe Weather	Y	Y	Y
EIA	4/20/2011 2:00	34.0	Indiana, Kentucky, Ohio	Duke Energy Midwest(RFC)	RFC	Y	Y	Y	165,711	N/A	N/A	Severe Weather - High Winds	N	Y	Y
EIA	4/20/2011 8:07	0.1	Ruston, Louisiana	City of Ruston & Constellation Energy(SERC)	SERC	Y	Y	N	11,000	33	N/A	Equipment Malfunction	Y	Y	Y
EIA	4/22/2011 21:00	2.0	Metro St. Louis area, Missouri	Ameren(SERC)	SERC	Y	Y	Y	55,000	0	N/A	Severe Weather	Y	Y	Y
EIA	4/25/2011 16:33	0.8	Northeast Tennessee	Tennessee Valley Authority(SERC)	SERC	Y	N	N	N/A	140	N/A	Equipment Malfunction	Y	Y	Y
EIA	4/25/2011 17:30	48.5	Arkasas, Louisiana, Mississippi	Entergy Corporation(SPP)	SPP	Y	N	N	141,700	N/A	N/A	Severe Weather	N	Y	Y
EIA	4/26/2011 5:49	28.2	Southern Louisiana	Entergy Corporation(SPP)	SPP	Y	N	N	N/A	120	N/A	Severe Weather	Y	Y	Y
EIA	4/26/2011 9:51	48.0	Alabama, Georgia, Mississippi, Tennessee	Tennesee Valley Authority(SERC)	SERC	Y	N	N	55,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	4/26/2011 18:14	46.8	Eastern Arkansas	West Memphis Utilities(SPP)	SPP	Y	Y	N	13,000	50	N/A	Severe Weather	Y	Y	Y
EIA	4/27/2011 8:00	128.0	Alabama, Florida, Georgia, Mississippi	Southern Company(SERC)	SERC	Y	N	N	426,640	1,422	N/A	Severe Weather	Y	Y	Y
EIA	4/27/2011 10:00	54.5	Alabama, Georgia, Mississippi, Tennessee	Tennesee Valley Authority(SERC)	SERC	Y	N	N	612,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	4/27/2011 22:00	12.0	Ohio, Tennessee, Virginia	American Electric Power(SERC)	SERC	Y	Y	N	69,000	0	N/A	Severe Weather	Y	Y	Y
EIA	4/28/2011 5:00	61.5	Cleveland area, Ohio	FirstEnergy Service Company(RFC)	RFC	Y	Y	Y	86,000	N/A	N/A	Severe Weather	N	Y	Y

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EIA	4/28/2011 16:09	0.0	Phoenix, Arizona	Mesquite Power, LLC(WECC)	WECC	Y	N	N	N/A	960	N/A	Equipment Malfunction	Y	Y	Y
EIA	5/2/2011 17:06	2.9	Hawaii	Hawaiian Electric Company(N/A)		N	N	N	62,000	220	N/A	Severe Weather	Y	Y	Y
EIA	5/10/2011 3:25	34.8	Upper Peninsula, Michigan	Midwest Independent System Operator (MISO)(RFC)	RFC	Y	Y	Y	78,213	585	N/A	Generation Inadequacy; Load Shed; Electrical System Separation (Islanding)	N	Y	Y
EIA	5/10/2011 22:21	16.1	Kentucky, West Virginia	American Electric Power(RFC)	RFC	Y	Y	N	58,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	5/11/2011 0:15	17.1	Charlotte, North Carolina	Duke Energy Carolinas(SERC)	SERC	Y	N	N	71,000	300	N/A	Severe Weather	Y	Y	Y
EIA	5/22/2011 17:09	210.9	Joplin, Sarcoxie, and Wentworth, Missouri	Empire District Electric(SPP)	SPP	Y	Y	N	20,000	200	N/A	Severe Weather	Y	Y	N
EIA	5/23/2011 12:30	48.0	St. Louis County, Missouri	Ameren(SERC)	SERC	Y	Y	Y	70,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	5/23/2011 16:45	55.2	Central, Indiana	Duke Energy Midwest(RFC)	RFC	Y	Y	Y	215,387	1,024	N/A	Severe Weather	Y	Y	Y
EIA	5/24/2011 16:35	20.1	Eastern Virginia	Dominion Virginia Power(SERC)	SERC	Y	Y	N	175,000	790	N/A	Severe Weather	Y	Y	Y
EIA	5/24/2011 16:45	48.3	Central Oklahoma	Oklahoma Gas & Electric(SPP)	SPP	Y	Y	N	54,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	5/25/2011 22:14	60.8	Central Indiana	Duke Energy Midwest(RFC)	RFC	Y	Y	Y	141,000	200	N/A	Severe Weather	Y	Y	Y
EIA	5/26/2011 1:00	5.0	Greenwood, Mississippi	Greenwood Utilities Commission(SERC)	SERC	Y	N	N	10,000	30	N/A	Transmission Level Interruption	Y	Y	Y
EIA	5/26/2011 18:30	34.2	Southern Balancing Area, Georgia	Southern Company(SERC)	SERC	Y	N	N	218,783	729	N/A	Severe Weather	Y	Y	Y
EIA	5/26/2011 19:56	22.1	Central Pennsylvania	PPL Electric Utilities(RFC)	RFC	Y	Y	N	120,001	150	N/A	Severe Weather	Y	Y	Y
EIA	5/29/2011 18:30	51.5	Mid and Southern Lower Peninsula, Michigan	Consumers Energy(RFC)	RFC	Y	Y	Y	113,000	250	N/A	Severe Weather	Y	Y	Y
EIA	6/2/2011 23:45	40.2	Greater Columbia, South Carolina	South Carolina Electric and Gas(SERC)	SERC	Y	N	N	50,465	0	N/A	Severe Weather	Y	Y	Y
EIA	6/5/2011 5:30	20.0	Houston Metro-Area, Texas	CenterPoint Energy(TRE)	TRE	Y	Y	N	78,000	473	N/A	Severe Thunderstorms	Y	Y	Y
EIA	6/5/2011 20:02	0.9	Melones, California	Pacific Gas and Electric(WECC)	WECC	Y	Y	N	5,314	10	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	6/6/2011 0:13	3.0	El Paso County, Texas; Dona Ana County, New Mexico	El Paso Electric Company(SPP)	SPP	Y	Y	N	162,000	450	N/A	Load Shed/ Automatic undervoltage relay action	Y	Y	Y
EIA	6/6/2011 15:00	48.0	Eastern, Arkansas	West Memphis Utilities(SPP)	SPP	Y	Y	N	13,000	N/A	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	6/7/2011 14:00	16.0	Ohio	American Electric Power(RFC)	RFC	Y	Y	N	52,747	N/A	N/A	Severe Weather	N	Y	Y
EIA	6/9/2011 4:30	7.5	Illinois	Exelon Corporation/ComEd(RFC)	RFC	Y	Y	N	169,000	N/A	N/A	Severe Thunderstorms	N	Y	Y
EIA	6/9/2011 17:51	18.1	Western, Massachusetts; Connecticut	ISO New England/Northeast Utilities(NPCC)	NPCC	Y	Y	N	100,000	0	N/A	Severe Thunderstorms	Y	Y	Y
EIA	6/12/2011 19:00	1.5	Virginia	Dominion Virginia Power(RFC)	RFC	Y	Y	N	56,000	250	N/A	Severe Thunderstorms	Y	Y	Y
EIA	6/15/2011 19:15	10.7	Georgia	Southern Company(SERC)	SERC	Y	N	N	169,000	563	N/A	Severe Thunderstorms	Y	Y	Y
EIA	6/15/2011 19:17	6.5	Piedmont, North Carolina	Duke Energy(SERC)	SERC	Y	N	N	70,135	300	N/A	Severe Thunderstorms	Y	Y	Y
EIA	6/18/2011 15:30	24.2	Northern, Georgia	Southern Company(SERC)	SERC	Y	N	N	93,828	312	N/A	Severe Thunderstorms	Y	Y	Y

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EIA	6/18/2011 16:45	55.2	Eastern, Arkansas	West Memphis Utilities(SPP)	SPP	Y	Y	N	N/A	N/A	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	6/18/2011 17:00	4.5	North Carolina; South Carolina	Duke Energy Carolinas(SERC)	SERC	Y	N	N	70,000	300	N/A	Severe Thunderstorms	Y	Y	Y
EIA	6/21/2011 18:30	12.5	AEP Region	American Electric Power (AEP)(RFC)	RFC	Y	Y	N	56,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	6/21/2011 21:45	28.3	Illinois	Exelon Corporation/Com Ed(RFC)	RFC	Y	Y	N	300,000	N/A	N/A	Severe Thunderstorms	N	Y	Y
EIA	6/22/2011 9:46	N/A	Knoxville, Tennessee	Tennessee Valley Authority (TVA)(SERC)	SERC	Y	N	N	106,300	N/A	N/A	Severe Weather	N	Y	Y
EIA	6/22/2011 19:00	6.0	Alabama; Georgia	Southern Company(SERC)	SERC	Y	N	N	75,101	316	N/A	Severe Thunderstorms	Y	Y	Y
EIA	6/24/2011 18:30	7.0	North/North Central Alabama; Georgia	Southern Company(SERC)	SERC	Y	N	N	102,275	340	N/A	Severe Thunderstorms	Y	Y	Y
EIA	6/26/2011 16:46	15.2	Southwest Kansas	Sunflower Electric Power Corporation(SPP)	SPP	Y	Y	N	N/A	N/A	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	6/26/2011 18:00	19.0	Alabama; Georgia	Southern Company(SERC)	SERC	Y	N	N	90,160	300	N/A	Severe Thunderstorms	Y	Y	Y
EIA	6/27/2011 0:00	49.0	Illinois; Missouri	AMEREN(SERC)	SERC	Y	Y	Y	80,000	N/A	N/A	Severe Thunderstorms	N	Y	Y
EIA	6/27/2011 15:00	4.0	Texas	ERCOT ISO(TRE)	TRE	Y	Y	N	0	0	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	6/29/2011 11:30	6.6	Panhandle and Muleshoe, Texas	Southwestern Public Service(SPP)	SPP	Y	Y	N	0	0	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	6/30/2011 14:11	9.2	Phoenix, Arizona	Salt River Project(WECC)	WECC	Y	N	N	160,000	5,299	N/A	Major System Interruption/Load Shed	Y	Y	Y
EIA	6/30/2011 22:30	18.5	Illinois	Exelon Corporation/Com Ed(RFC)	RFC	Y	Y	N	121,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	7/1/2011 17:00	51.0	Southwest and South Central Minnesota	Xcel Energy Northern States Power Company(MRO)	MRO	Y	Y	Y	70,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	7/2/2011 20:15	97.7	South East, Lower Peninsula, Michigan	Detroit Edison, Subsidiary of DTE Energy(RFC)	RFC	Y	Y	Y	182,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	7/4/2011 18:00	3.0	Virginia	Dominion Virginia Power(SERC)	SERC	Y	Y	N	51,580	150	N/A	Severe Weather	Y	Y	Y
EIA	7/11/2011 9:00	N/A	Illinois	Exelon Corporation/Com Ed(RFC)	RFC	Y	Y	N	500,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	7/11/2011 9:00	1.4	Michigan	Detroit Edison, Subsidiary of DTE Energy(RFC)	RFC	Y	Y	Y	103,000	254	N/A	Severe Weather	Y	Y	Y
EIA	7/11/2011 11:15	21.0	Western and Southern Lower Peninsula Michigan	Consumers Energy(RFC)	RFC	Y	Y	Y	85,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	7/11/2011 14:27	25.4	Indiana, Michigan, Ohio	American Electric Power (AEP)(RFC)	RFC	Y	Y	N	120,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	7/13/2011 17:19	4.7	Pueblo, Colorado	Public Service Company of Colorado(WECC)	WECC	Y	N	N	N/A	580	N/A	Load Shed	Y	Y	Y
EIA	7/14/2011 11:00	8.0	Texas	ERCOT ISO(TRE)	TRE	Y	Y	N	0	0	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	7/18/2011 17:00	140.5	Southeast Michigan	Detroit Edison, Subsidiary of DTE Energy(RFC)	RFC	Y	Y	Y	197,166	N/A	N/A	Severe Weather	N	Y	Y

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EIA	7/21/2011 12:32	18.0	Lower Peninsula, Michigan	Consumers Energy(RFC)	RFC	Y	Y	Y	N/A	8,881	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	7/21/2011 13:00	2.0	Springfield, Illinois	City Water Light and Power(SERC)	SERC	Y	Y	Y	N/A	N/A	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	7/22/2011 11:00	7.0	Upstate, New York	Niagara Mohawk Power Corporation (dba National Grid)(NPCC)	NPCC	Y	Y	N	N/A	N/A	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	7/22/2011 11:34	5.9	Ohio	PJM Interconnection(RFC)	RFC	Y	Y	N	23,000	206	N/A	Load Shed	Y	Y	Y
EIA	7/23/2011 2:30	30.5	Illinois	Exelon Corporation/ComEd(RFC)	RFC	Y	Y	N	169,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	7/28/2011 0:14	35.8	Entire ComEd Territory, Indiana	Exelon Corporation/ComEd(RFC)	RFC	Y	Y	N	201,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	7/28/2011 7:26	24.0	Daviess County, Kentucky	Owensboro Municipal Utilities(SERC)	SERC	Y	Y	Y	N/A	N/A	N/A	Fuel Supply Deficiency (Coal)	N	Y	Y
EIA	7/29/2011 20:45	55.6	Central New Jersey	FirstEnergy Corp: Jersey Central Power & Light(RFC)	RFC	Y	Y	N	67,900	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/1/2011 15:00	100.0	Texas	ERCOT ISO	TRE	Y	Y	N	0	0	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	8/2/2011 10:15	23.0	Oklahoma	Oklahoma Gas & Electric	SPP	Y	Y	N	N/A	N/A	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	8/2/2011 21:30	21.5	Northeast IL	Exelon/ComEd	RFC	Y	Y	N	71,500	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/3/2011 10:00	384.0	Western NY	AES Somerset LLC	NPCC	Y	Y	N	N/A	675	N/A	Fuel Supply Deficiency (Coal)	N	Y	N
EIA	8/3/2011 16:29	7.2	Northeast OK	Grand River Dam Authority	SPP	Y	Y	N	N/A	300	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	8/3/2011 16:30	4.5	Central AK	Entergy	SPP	Y	N	N	0	0	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	8/4/2011 10:30	5.5	Arkansas; OK; TX	American Electric Power (AEP)	SPP	Y	Y	N	N/A	N/A	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	8/8/2011 19:36	16.4	Oklahoma	Oklahoma Municipal Power Authority	SPP	Y	N	N	14,500	92	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	8/8/2011 20:58	43.5	Northern and Central OK	Oklahoma Gas & Electric	SPP	Y	Y	N	54,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/13/2011 16:41	26.3	Kentucky	LG&E & KU Energy LLC	SERC	Y	N	N	181,700	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/20/2011 17:42	74.3	Southeastern MI	Detroit Edison, Subsidiary of DTE Energy	RFC	Y	Y	Y	65,000	254	N/A	Severe Weather	Y	Y	Y
EIA	8/21/2011 22:45	48.0	Puerto Rico	Puerto Rico Electric Power Authority (PREPA)	N/A	N	N	N	931,000	2,200	N/A	Severe Weather	Y	Y	Y
EIA	8/23/2011 10:30	6.4	Southeastern NM, Texas Panhandle	Southwestern Public Service Company	SPP	Y	Y	N	0	0	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	8/23/2011 13:51	N/A	Virginia	Dominion Virginia Power	RFC	Y	Y	N	0	0	N/A	Earthquake	N	Y	Y
EIA	8/23/2011 15:43	3.3	Texas	ERCOT ISO	TRE	Y	Y	N	0	0	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	8/24/2011 7:45	22.3	Houston, TX	CenterPoint Energy	TRE	Y	Y	N	79,000	485	N/A	Severe Weather	Y	Y	Y
EIA	8/24/2011 13:20	125.7	Texas	ERCOT ISO	TRE	Y	Y	N	0	0	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y

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EIA	8/24/2011 14:51	7.1	AK; LA; TX	American Electric Power (AEP)	SPP	Y	Y	N	53,064	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/25/2011 0:30	91.5	Cleveland, OH	First Energy Corp: Cleveland Electric Illuminating Company	RFC	Y	Y	N	107,833	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/26/2011 0:30	48.0	Pennsylvania	First Energy Corp:Metropolitan Edison Co	RFC	Y	Y	N	200,717	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/27/2011 2:00	3.2	Wilson County NC	Town of Stantonsburg JRO	SERC	Y	N	N	1,200	2	N/A	Distribution System Interruption	N	Y	Y
EIA	8/27/2011 2:57	68.5	Eastern NC	Progress Energy Carolinas	SERC	Y	N	N	285,465	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/27/2011 10:33	51.5	North Carolina; VA	Dominion Virginia Power	SERC	Y	Y	N	1,000,000	N/A	N/A	Severe Weather	N	Y	N
EIA	8/27/2011 13:00	48.0	Delaware; Maryland	Delmarva P&L Co	RFC	Y	Y	N	165,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/27/2011 19:00	42.5	Eastern NC	NC Eastern Municipal Power	SERC	Y	N	N	136,000	200	N/A	Severe Weather	Y	Y	Y
EIA	8/27/2011 20:30	195.0	Maryland	Baltimore Gas & Electric	RFC	Y	Y	N	760,113	1,114	N/A	Severe Weather	Y	Y	N
EIA	8/27/2011 22:00	42.0	Southern NJ	Atlantic City Electric	RFC	Y	Y	N	140,000	320	N/A	Severe Weather	Y	Y	Y
EIA	8/27/2011 22:00	48.0	Pennsylvania	Exelon/PECO	RFC	Y	Y	N	264,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/27/2011 23:00	33.0	Maryland	Southern Maryland Electric Cooperative (SMECO)	RFC	Y	Y	N	108,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/27/2011 23:05	40.4	Disctric of Columbia; Maryland	Pepco	RFC	Y	Y	N	220,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/28/2011 0:01	48.0	Mid-Hudson, NY	Central Hudson Gas & Electric	NPCC	Y	Y	N	180,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/28/2011 0:23	48.0	New Jersey	Public Service Electric and Gas Co	RFC	Y	Y	N	665,000	500	N/A	Severe Weather	Y	Y	Y
EIA	8/28/2011 0:30	48.0	Northern and Central NJ	First Energy Corp: Jersey Central Power & Light	RFC	Y	Y	N	650,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/28/2011 2:58	48.0	Eastern and NE PA	PPL Electric Utilities	RFC	Y	Y	N	284,000	110	N/A	Severe Weather	Y	Y	Y
EIA	8/28/2011 5:00	48.0	Long Island, NY	Long Island Power Authority	NPCC	Y	Y	N	152,261	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/28/2011 5:01	144.0	Borough's and Westshester County NY	Consolidated Edison Company of NY, Inc	NPCC	Y	Y	N	50,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/28/2011 7:00	137.0	New York	New York State Electric & Gas Corp	NPCC	Y	Y	N	99,700	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/28/2011 7:40	24.0	Southwest Connecticut	The United Illuminating Corp	NPCC	Y	Y	N	158,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/28/2011 9:42	38.3	Eastern NY	Niagra Mohawk Power Corp	NPCC	Y	Y	N	100,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/28/2011 12:10	0.0	Eastern MA	ISO New England	NPCC	Y	Y	N	50,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	8/28/2011 12:30	0.0	New York	Orange and Rockland Utilities, Inc.	NPCC	Y	Y	N	116,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	9/3/2011 14:00	124.0	Southeast Lower Peninsula, MI	Detroit Edison, Subsidiary of DTE Energy	RFC	Y	Y	Y	105,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	9/5/2011 16:30	47.3	Alabama; Georgia	Southern Co	SERC	Y	N	N	53,295	177	N/A	Severe Weather	Y	Y	Y
EIA	9/8/2011 15:28	48.0	Arizona; California	WECC Reliability Coordinator	WECC	Y	Y	N	2,000,000	7,000	N/A	Transmission/Distribution Interruption; Load Shed; Generation Inadequacy	N	Y	N

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	9/21/2011 14:37	1.2	Puerto Rico	Puerto Rico Electric Power Authority (PREPA)	N/A	N	N	N	319,616	600	N/A	Generation Inadequacy; Load Shed	N	Y	Y
EIA	9/29/2011 5:00	25.0	Houston, TX	CenterPoint Energy	TRE	Y	Y	N	65,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	10/26/2011 5:00	34.0	Denver; Ft. Collins, Colorado	Public Service Co of Colorado	WECC	Y	N	N	204,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	10/29/2011 8:59	227.0	Pennsylvania	Metropolitan Edison Co	RFC	Y	Y	N	312,359	N/A	N/A	Severe Weather	N	Y	N
EIA	10/29/2011 8:59	222.0	Pennsylvania	Potomac Edison	RFC	Y	Y	N	50,000	N/A	N/A	Severe Weather	N	Y	N
EIA	10/29/2011 9:59	219.0	Northwest & Central NJ	Jersey Central Power & Light Co	RFC	Y	Y	N	379,000	N/A	N/A	Severe Weather	N	Y	N
EIA	10/29/2011 11:18	132.7	Southeast NY	New York State Electric & Gas Corp	NPCC	Y	Y	N	161,151	N/A	N/A	Severe Weather	N	Y	Y
EIA	10/29/2011 12:57	130.1	Harrisburg, Lehigh Valley, Lancaster Region PA	PPL Electric Utilities	RFC	Y	Y	N	146,721	N/A	N/A	Severe Weather	N	Y	Y
EIA	10/29/2011 14:00	48.0	Southeast PA	Exelon Corp/PECO	RFC	Y	Y	N	109,335	N/A	N/A	Severe Weather	N	Y	Y
EIA	10/29/2011 14:30	189.5	New Jersey	Public Service Electric and Gas Co	RFC	Y	Y	N	197,000	125	N/A	Severe Weather	Y	Y	N
EIA	10/29/2011 15:00	89.3	Mid-Hudson Valley Region, NY	Central Hudson Gas & Electric Corp	NPCC	Y	Y	N	145,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	10/29/2011 16:14	215.8	CT; ME; MA; NH; RI	ISO New England	NPCC	Y	Y	N	1,418,100	N/A	N/A	Severe Weather	N	Y	N
EIA	10/29/2011 16:16	101.2	New York City Area	Consolidated Edison Company of NY, Inc	NPCC	Y	Y	N	50,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	10/29/2011 20:00	48.0	New Jersey; New York	Orange and Rockland Utilities, Inc.	NPCC, RFC	Y	Y	N	74,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	11/30/2011 16:56	41.1	City of LA,CA	Los Angeles Department of Water and Power	WECC	Y	N	N	150,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	12/1/2011 0:45	164.3	Southern CA	Southern CA Edison (SCE)	WECC	Y	Y	N	91,690	N/A	N/A	Severe Weather	N	Y	Y
EIA	12/1/2011 3:29	33.6	Northern CA	Pacific Gas & Electric	WECC	Y	Y	N	100,000	300	N/A	Severe Weather	Y	Y	Y
EIA	12/1/2011 10:00	27.2	Wasatch Front Area, UT	PacifiCorp	WECC	Y	N	N	60,000	N/A	N/A	Severe Weather	N	Y	Y
EIA	12/6/2011 8:00	12.0	Bismark-Mandan, ND	Montana Dakota Utilities	MRO	Y	Y	Y	34,500	155	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	12/7/2011 19:29	3.5	Central Virginia	Dominion Virginia Power	SERC	Y	Y	N	60,000	240	N/A	Severe Weather	Y	Y	Y
EIA	1/4/2012 12:14	N/A	Tacoma, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Suspected physical attack	N	Y	N
EIA	1/5/2012 10:35	1.8	CSWS/AEP West territory, Oklahoma	American Electric Power	SPP	Y	Y	N	0	0	N/A	Sabotage	N	Y	Y
EIA	1/5/2012 10:28	1.9	Creek County, Oklahoma	Oklahoma Gas and Electric	SPP	Y	Y	N	N/A	N/A	N/A	Suspected physical attack	N	Y	Y
EIA	1/9/2012 14:30	1.0	Watertown, Connecticut	ISO New England/Convex	NPCC	Y	Y	N	N/A	N/A	N/A	Vandalism	N	Y	Y
EIA	1/9/2012 13:36	35.5	Louisiana	The Dow Chemical Company	SERC	Y	N	N	1	150	N/A	Load Shed	Y	Y	Y
EIA	1/10/2012 21:30	N/A	Rusk County, Texas	Luminant Energy Company LLC	TRE	Y	Y	N	N/A	N/A	N/A	Load Shed	N	Y	N
EIA	1/11/2012 7:19	1.8	Nevada	Nevada Power Company (NV Energy)	WECC	Y	N	N	0	0	N/A	Suspected Physical Attack	N	Y	Y
EIA	1/12/2012 8:26	N/A	Newark, Delaware	Delmarva Power & Light Company	RFC	Y	Y	N	0	0	N/A	Physical Attack	N	Y	Y
EIA	1/13/2012 9:20	N/A	Newark, Delaware	Delmarva Power & Light Company	RFC	Y	Y	N	0	0	N/A	Physical Attack	N	Y	Y
EIA	1/15/2012 9:35	N/A	Tacoma, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Vandalism	N	Y	N

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	1/17/2012 10:31	6.8	Austin, Texas	Pedernales Electric Cooperative, Inc.	TRE	Y	Y	N	0	N/A	N/A	Suspected Cyber Attack	N	Y	Y
EIA	1/19/2012 7:00	32.0	King, Pierce and Thurston Counties, Washington	Puget Sound Energy	WECC	Y	N	N	426,000	1,600	N/A	Severe Weather - Winter Storm	Y	Y	Y
EIA	1/24/2012 11:22	N/A	Tacoma, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Vandalism	N	Y	N
EIA	1/27/2012 9:40	N/A	Frederickson Substation, Spanaway, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Vandalism	N	Y	N
EIA	1/29/2012 12:45	N/A	Roosevelt Substation, Tacoma, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Vandalism	N	Y	N
EIA	2/11/2012 8:47	1.7	Lamar, Colorado	Xcel Energy (Public Service Company of Colorado)	WECC	Y	N	N	0	0	N/A	Suspected Physical Attack	N	Y	Y
EIA	2/11/2012 8:55	N/A	Tacoma, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	N
EIA	2/13/2012 7:02	9.4	Asheville, North Carolina	Progress Energy Carolinas	SERC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	2/14/2012 19:20	20.7	Tacoma, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	2/15/2012 5:33	12.0	Port Orchard, Washington	Puget Sound Energy	WECC	Y	N	N	0	0	N/A	Suspected Physical Attack	N	Y	Y
EIA	2/17/2012 3:00	8.5	Little Rock, Arkansas	Entergy Services, Inc	SERC	Y	N	N	N/A	N/A	N/A	Suspected Cyber Attack	N	Y	Y
EIA	2/19/2012 17:00	38.5	Kentucky, Virginia, West Virginia	American Electric Power	SERC	Y	Y	N	90,000	N/A	N/A	Severe Weather - Winter Storm	N	Y	Y
EIA	2/23/2012 5:45	9.3	South East College Station, Texas	City of College Station	TRE	Y	Y	N	0	0	N/A	Suspected Physical Attack	N	Y	Y
EIA	2/23/2012 23:12	1.8	Londonderry, New Hampshire	ISO New England	NPCC	Y	Y	N	0	0	N/A	Suspected Physical Attack	N	Y	Y
EIA	2/24/2012 11:24	0.4	Spanaway, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	2/28/2012 2:59	3.2	Sacramento, California	Pacific Gas and Electric	WECC	Y	Y	N	1	1	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	2/28/2012 7:00	N/A	Coos County Oregon	Coos Curry Electric Cooperative	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	N
EIA	3/2/2012 12:37	71.4	Northern Alabama; Southeast Tennessee	Tennessee Valley Authority (TVA)	SERC	Y	N	N	N/A	500	N/A	Severe Weather - Tornadoes	Y	Y	Y
EIA	3/2/2012 13:45	1.8	Piggott, Arkansas	City of Piggott, Arkansas	SERC	Y	N	N	N/A	N/A	N/A	Operational Failure / Equipment Malfunction	N	Y	Y
EIA	3/2/2012 21:00	67.5	Southeastern, Michigan	Detroit Edison, Subsidiary of DTE Energy	RFC	Y	Y	Y	130,000	371	N/A	Severe Weather - Winter Storm	Y	Y	Y
EIA	3/2/2012 21:00	44.5	Lower Peninsula, Michigan	Consumers Energy	RFC	Y	Y	Y	140,000	50	N/A	Severe Weather - Winter Storm	Y	Y	Y
EIA	3/4/2012 1:27	5.5	Prince Georges County, Maryland	Potomac Electric Power (Pepco Holdings Inc.)	RFC	Y	Y	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	3/4/2012 13:38	21.4	Texas	Entergy Corporation	TRE	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	3/16/2012 16:00	N/A	New Castle, Delaware	Delmarva Power & Light Company	RFC	Y	Y	N	0	0	N/A	Suspected Physical Attack	N	Y	Y
EIA	3/20/2012 8:00	5.0	Houston, Texas	CenterPoint Energy	TRE	Y	Y	N	96,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	3/23/2012 19:34	N/A	Newark, Delaware	Delmarva Power & Light Company	RFC	Y	Y	N	0	0	N/A	Suspected Physical Attack	N	Y	Y
EIA	3/26/2012 13:24	N/A	Tacoma, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	N
EIA	3/28/2012 10:17	N/A	Graham, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	N

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	3/29/2012 12:01	0.0	Lansing, Michigan	Lansing Board of Water & Light	RFC	Y	Y	Y	0	N/A	N/A	Electrical System Separation (Islanding)	N	Y	Y
EIA	3/30/2012 11:10	0.3	Vermont	ISO New England	NPCC	Y	Y	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	4/1/2012 20:27	36.0	Council Bluffs, Iowa	Mid American Energy Company	MRO	Y	Y	Y	0	0	N/A	Vandalism	N	Y	Y
EIA	4/3/2012 11:10	0.2	West Rutland, Vermont	ISO New England	NPCC	Y	Y	N	0	0	N/A	Vandalism	N	Y	Y
EIA	4/3/2012 15:33	4.9	Seattle, Washington	Seattle City Light	WECC	Y	N	N	0	0	N/A	Physical Attack	N	Y	Y
EIA	4/4/2012 15:32	48.0	WAPA-SNR Regional Office, California	Western Area Power Authority - Sierra Nevada Region (WASN)	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	4/7/2012 14:35	0.0	Newark, Delaware	Delmarva Power & Light Company	RFC	Y	Y	N	0	0	N/A	Physical Attack	N	Y	Y
EIA	4/7/2012 12:25	0.0	Newark, Delaware	Delmarva Power & Light Company	RFC	Y	Y	N	0	0	N/A	Physical Attack	N	Y	Y
EIA	4/7/2012 9:31	0.0	Newark, Delaware	Delmarva Power & Light Company	RFC	Y	Y	N	0	0	N/A	Physical Attack	N	Y	Y
EIA	4/11/2012 9:00	N/A	North Attleboro, Massachusetts	North Attleborough Electric Department	NPCC	Y	Y	N	0	0	N/A	Vandalism	N	Y	Y
EIA	4/12/2012 8:08	8.4	Tacoma, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	4/15/2012 19:38	1.8	Georgia	Southern Company	SERC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	4/16/2012 15:46	58.2	Southeast, Michigan	Detroit Edison, Subsidiary of DTE Energy	RFC	Y	Y	Y	111,393	218	N/A	Severe Weather - High Winds	Y	Y	Y
EIA	4/17/2012 6:11	11.6	San Diego County, California	San Diego Gas & Electric Company	WECC	Y	Y	N	0	0	N/A	Suspected Physical Attack	N	Y	Y
EIA	4/19/2012 7:53	8.1	Tacoma, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	4/20/2012 14:27	14.0	Metropolitan Houston, Texas	CenterPoint Energy	TRE	Y	Y	N	120,377	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	4/21/2012 15:02	5.1	East Bridgewater, Massachusetts	ISO New England	NPCC	Y	Y	N	N/A	N/A	N/A	Physical Attack	N	Y	Y
EIA	4/21/2012 20:55	43.6	Tacoma, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	4/23/2012 8:11	4.6	Northwest Indiana	Northern Indiana Public Service Company (NIPSCO)	RFC	Y	Y	Y	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	4/23/2012 11:56	3.7	Snohomish County, Washington	Seattle City Light	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	5/7/2012 12:50	1.2	Williston, Vermont	ISO New England	NPCC	Y	Y	N	0	0	N/A	Vandalism	N	Y	Y
EIA	5/7/2012 17:45	0.3	Eastern Ohio	American Electric Power (AEP)	RFC	Y	Y	N	1	420	N/A	Load Shed / Severe Weather - Lightning Storm	Y	Y	Y
EIA	5/11/2012 11:05	0.2	Lakewood, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Vandalism	N	Y	Y
EIA	5/24/2012 15:20	26.2	Tyngsborough, Massachusetts	ISO New England	NPCC	Y	Y	N	N/A	N/A	N/A	Physical Attack	N	Y	Y
EIA	5/29/2012 18:30	1.2	Alder Dam, Pierce County, Washington	Tacoma Power (TPWR)	WECC	Y	N	N	N/A	N/A	N/A	Physical Attack	N	Y	Y
EIA	5/29/2012 20:35	37.4	Oklahoma City Metro Area, Oklahoma	Oklahoma Gas & Electric	SPP	Y	Y	N	112,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	5/31/2012 23:45	4.7	Columbus, Ohio	American Electric Power (AEP)	RFC	Y	Y	N	0	0	N/A	Physical Attack	N	Y	Y
EIA	6/2/2012 7:30	4.1	San Francisco, California	Pacific Gas and Electric Company	WECC	Y	Y	N	N/A	N/A	N/A	Vandalism	N	Y	Y
EIA	6/6/2012 8:00	N/A	Delhi, New York	New York Power Authority	NPCC	Y	Y	N	N/A	N/A	N/A	Vandalism	N	Y	N

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EIA	6/6/2012 12:37	N/A	Columbia Heights, NW, Washington DC	Potomac Electric Power Company (PEPCO)	RFC	Y	Y	N	0	0	N/A	Vandalism	N	Y	Y
EIA	6/8/2012 17:20	0.1	Denver Metro Area, Colorado	Public Service Company of Colorado	WECC	Y	N	N	30,379	120	N/A	Load Shed	Y	Y	Y
EIA	6/11/2012 19:50	19.2	North/Central Alabama; North/Central Georgia	Southern Company	SERC	Y	N	N	110,591	368	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/12/2012 15:57	37.0	Houston, Texas	CenterPoint Energy	TRE	Y	Y	N	175,000	920	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/13/2012 16:55	5.2	San Juan County, New Mexico	Public Service Company of New Mexico	WECC	Y	N	N	0	0	N/A	Vandalism	N	Y	Y
EIA	6/19/2012 4:30	42.5	Minneapolis/St. Paul, Minnesota	Xcel Energy	MRO	Y	Y	Y	68,200	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	6/19/2012 5:30	48.0	CAISO Territory California	California Department of Water Resources	WECC	Y	Y	N	N/A	N/A	N/A	Fuel Supply Deficiency (Water)	N	Y	Y
EIA	6/23/2012 18:57	0.5	North Shore, Massachusetts	ISO New England	NPCC	Y	Y	N	29,250	51	N/A	Load Shed	Y	Y	Y
EIA	6/25/2012 16:04	21.7	Central Virginia	Dominion	SERC	Y	Y	N	190,000	600	N/A	Severe Weather - Wind & Rain	Y	Y	Y
EIA	6/29/2012 10:45	N/A	New Castle, Delaware	Delmarva Power & Light Company	RFC	Y	Y	N	0	0	N/A	Physical Attack	N	Y	Y
EIA	6/29/2012 12:10	4.9	Puerto Rico	Puerto Rico Electric Power Authority (PREPA)	N/A	N	N	N	900,000	1,800	N/A	Equipment Trip & Failure	Y	Y	Y
EIA	6/29/2012 14:10	123.8	Dayton, Ohio	Dayton Power & Light	RFC	Y	Y	N	175,000	500	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/29/2012 16:00	72.0	Indiana; Michigan; Ohio; West Virginia	American Electric Power (AEP)	RFC	Y	Y	N	1,355,919	N/A	N/A	Severe Weather - Thunderstorms	N	Y	N
EIA	6/29/2012 16:00	5.0	Eastern, Arkansas	Entergy	SERC	Y	N	N	7,935	45	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	6/29/2012 17:15	78.7	Eastern Indiana; Northern Kentucky; Greater Cincinnati area Ohio	Duke Energy Midwest	RFC	Y	Y	N	4,645,572	2,946	N/A	Severe Weather - Thunderstorms	Y	Y	N
EIA	6/29/2012 18:24	159.6	West Virginia	FirstEnergy (Mon Power)	RFC	Y	Y	N	265,000	700	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/29/2012 19:00	192.7	Maryland; West Virginia	FirstEnergy (Potomac Edison)	RFC	Y	Y	N	145,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	N
EIA	6/29/2012 22:15	134.6	Montgomery and Prince Georges Counties, Maryland; District of Columbia	Pepco	RFC	Y	Y	N	425,000	3,000	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/29/2012 22:29	113.1	Virginia	Dominion	SERC	Y	Y	N	880,000	5,000	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/29/2012 22:43	133.1	Greater Baltimore area, Maryland	Baltimore Gas & Electric Company (BGE)	RFC	Y	Y	N	600,000	1,465	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/29/2012 23:30	2.5	Northeast Illinois	Exelon Corporation/Com Ed	RFC	Y	Y	N	109,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	6/30/2012 1:00	72.0	Delaware; Maryland	Delmarva Power & Light Company	RFC	Y	Y	N	86,390	0	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/30/2012 1:15	184.3	Atlantic City Electric Service Territory New Jersey	Atlantic City Electric	RFC	Y	Y	N	205,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	N
EIA	6/30/2012 15:00	45.0	Northeast Tennessee	Tennessee Valley Authority (TVA)	SERC	Y	N	N	N/A	N/A	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	6/30/2012 22:30	33.7	Calvert, Charles, St. Mary's, Prince Georges Counties Maryland	Southern Maryland Electric Cooperative, Inc.	RFC	Y	Y	N	60,000	354	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/1/2012 13:00	50.0	Illinois	Exelon Corporation/Com Ed	RFC	Y	Y	N	320,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	7/1/2012 16:47	6.2	Tarboro, North Carolina	North Carolina Municipal Power Agency #1	SERC	Y	N	N	6,100	48	N/A	Operational Failure; Storm Damage	Y	Y	Y
EIA	7/1/2012 17:45	4.5	Northern, Central and Eastern North Carolina	Progress Energy, Carolinas	SERC	Y	N	N	69,106	N/A	N/A	Severe Weather	N	Y	Y
EIA	7/5/2012 0:00	44.5	Lower Peninsula Michigan	Consumers Energy	RFC	Y	Y	Y	111,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	7/5/2012 19:00	21.0	Northeast Tennessee	Tennessee Valley Authority (TVA)	SERC	Y	N	N	50,001	N/A	N/A	Severe Weather - Wind & Storms	N	Y	Y
EIA	7/6/2012 15:05	0.0	Tacoma, Washington	City of Tacoma - TPWR	WECC	Y	N	N	N/A	N/A	N/A	Vandalism	N	Y	Y
EIA	7/7/2012 4:00	72.0	CAISO California	California Department of Water Resources	WECC	Y	Y	N	0	N/A	N/A	Fuel Supply Deficiency (Water)	N	Y	Y
EIA	7/7/2012 6:06	64.9	Lower Valley, Central, Susquehanna Regions Pennsylvania	PPL Electric Utilities Corp	RFC	Y	Y	N	64,500	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	7/7/2012 18:00	49.0	Central and Northern New Jersey	FirstEnergy Corp. Jersey Central Power & Light	RFC	Y	Y	N	95,400	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	7/9/2012 12:15	4.0	Alberta, Canada	WECC RC Vancouver	WECC	N	N	N	N/A	9,896	N/A	Energy Deficiency Alert	N	Y	Y
EIA	7/16/2012 11:27	1.0	Little Rock, Arkansas	North Little Rock Electric Department	SPP	Y	Y	N	N/A	N/A	N/A	Public Appeal to Reduce Electricity Usage	N	Y	Y
EIA	7/18/2012 14:16	33.7	Southeast Ohio, Northern Kentucky, Southern Indiana	Duke Energy Midwest	RFC	Y	Y	N	103,000	480	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/18/2012 16:20	2.8	Eastern Ohio	American Electric Power (AEP)	RFC	Y	Y	N	67,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	7/18/2012 23:00	7.0	Northern Illinois	Exelon Corporation/Com Ed	RFC	Y	Y	N	181,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	7/19/2012 10:30	288.5	Niagara County, New York	Somerset Operating Company	NPCC	Y	Y	N	N/A	675	N/A	Fuel Supply Deficiency (Coal)	N	Y	N
EIA	7/19/2012 12:32	0.0	Newark, Delaware	Delmarva Power & Light Company	RFC	Y	Y	N	N/A	N/A	N/A	Vandalism	N	Y	Y
EIA	7/21/2012 2:19	3.0	City of Lubbock, Texas	Lubbock Power and Light	TRE	Y	Y	N	70,000	220	N/A	Severe Weather; Equipment Failure	Y	Y	Y
EIA	7/24/2012 7:01	9.5	Northern Indiana	Northern Indiana Public Service Company	RFC	Y	Y	Y	82,621	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	7/24/2012 7:30	14.5	Northern Illinois	Exelon Corporation/Com Ed	RFC	Y	Y	N	330,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	7/26/2012 18:14	24.0	Western Pennsylvania	FirstEnergy Corp.: Pennsylvania Electric Company	RFC	Y	Y	N	65,112	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	7/26/2012 18:21	53.2	North/Central Pennsylvania	PPL Electric Utilities Corp	RFC	Y	Y	N	65,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	7/26/2012 18:30	22.9	Eastern Ohio	American Electric Power (AEP)	RFC	Y	Y	N	57,054	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	7/27/2012 17:19	24.0	Central Indiana	Duke Energy Midwest	RFC	Y	Y	Y	52,702	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	8/1/2012 12:00	N/A	Oklahoma, Arkansas	Oklahoma Gas & Electric Co	SPP	Y	Y	N	N/A	N/A	N/A	Public Appeal to Reduce Electricity Usage	N	Y	N
EIA	8/4/2012 3:55	0.4	Temblor Substation in McKittrick, California	Pacific Gas & Electric Co	WECC	Y	Y	N	127	5	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	8/4/2012 4:00	3.3	Northern Indiana	Northern Indiana Public Service Company	RFC	Y	Y	Y	61,413	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	8/4/2012 17:30	18.7	Northeast Illinois	Exelon Corporation/Com Ed	RFC	Y	Y	N	325,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	8/11/2012 12:45	4.3	Tacoma, Washington	City of Tacoma, TPWR	WECC	Y	N	N	N/A	N/A	N/A	Suspected Physical Attack	N	Y	Y
EIA	8/13/2012 13:15	N/A	Knoxville, Tennessee	Tennessee Valley Authority	SERC	Y	N	N	N/A	N/A	N/A	Vandalism	N	Y	N
EIA	8/13/2012 15:52	3.9	CFE (Mexico & U.S.)	WECC Reliability Coordinator	WECC	N	N	N	N/A	655	N/A	Severe Weather - Dust Storm; Load Shed Event	Y	Y	Y
EIA	8/16/2012 13:13	N/A	Northern Indiana	Northern Indiana Public Service Company	RFC	Y	Y	Y	0	0	N/A	Vandalism	N	Y	Y
EIA	8/19/2012 8:42	3.4	El Paso, Texas	El Paso Electric Co	TRE	Y	N	N	3,314	12	N/A	Suspected Physical Attack	N	Y	Y
EIA	8/26/2012 22:04	4.0	Florida	Florida Power & Light	FRCC	Y	N	N	440,000	N/A	N/A	Severe Weather - TS Isaac	N	Y	Y
EIA	8/28/2012 6:00	170.0	Arkansas, Louisiana, Mississippi	Entergy	SERC	Y	N	N	770,000	N/A	N/A	Severe Weather - Hurricane Isaac	N	Y	N
EIA	8/29/2012 6:53	31.1	Louisiana	Dixie Electric Membership Corp	SERC	Y	N	N	68,018	150	N/A	Severe Weather - Hurricane Isaac	Y	Y	Y
EIA	8/29/2012 9:00	51.0	Louisiana	Louisiana Generating LLC	SERC	Y	N	N	50,000	300	N/A	Severe Weather - Hurricane Isaac	Y	Y	Y
EIA	8/29/2012 9:48	51.1	Louisiana	Cleco Power LLC	SPP	Y	Y	N	95,000	N/A	N/A	Severe Weather - Hurricane Isaac	N	Y	Y
EIA	9/8/2012 15:40	3.1	Prince George's County, Montgomery County Maryland; D.C.	PEPCO (Potomac Electric Power Company)	RFC	Y	Y	N	65,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	9/8/2012 15:53	27.9	Virginia	Dominion Virginia Power	SERC	Y	Y	N	119,000	475	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	9/11/2012 13:00	1.0	Alberta, Canada	WECC - Loveland	WECC	N	N	N	0	0	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	9/26/2012 21:16	1.0	Puerto Rico	Puerto Rico Electric Power Authority (PREPA)	N/A	N	N	N	371,526	600	N/A	Voltage Reduction	N	Y	Y
EIA	10/14/2012 10:36	0.2	Northern California	Pacific Gas & Electric Co	WECC	Y	Y	N	2,035	3	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	10/23/2012 9:10	0.1	Crawfordsville, Indiana	Crawfordsville Electric, Light & Power	RFC	Y	Y	Y	9,800	49	N/A	Transmission System Interruption	Y	Y	Y
EIA	10/29/2012 0:00	288.0	West Virginia	FirstEnergy Corp: Mon Power Company	RFC	Y	Y	N	208,000	0	N/A	Severe Weather - Hurricane Sandy	Y	Y	N
EIA	10/29/2012 8:00	159.0	New Jersey	Atlantic City Electric Co	RFC	Y	Y	N	N/A	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	Y
EIA	10/29/2012 9:00	105.0	Delaware, Maryland	Delmarva Power & Light Company	RFC	Y	Y	N	70,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	Y
EIA	10/29/2012 12:00	155.0	New Jersey	FirstEnergy Corp: Jersey Central Power & Light	RFC	Y	Y	N	217,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	Y
EIA	10/29/2012 13:00	337.0	Long Island, New York	Long Island Power Authority (LIPA)	NPCC	Y	Y	N	632,816	0	N/A	Severe Weather - Hurricane Sandy	Y	Y	N
EIA	10/29/2012 14:40	27.6	Boston, Southeast Massachusetts	ISO New England obo NSTAR	NPCC	Y	Y	N	50,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	10/29/2012 14:45	58.7	Eastern Massachusetts	ISO New England/REMVEC	NPCC	Y	Y	N	50,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	Y
EIA	10/29/2012 15:15	148.8	Connecticut, Western Massachusetts	ISO New England/CONVEX	NPCC	Y	Y	N	649,075	0	N/A	Severe Weather - Hurricane Sandy	Y	Y	Y
EIA	10/29/2012 16:00	176.0	Greater Cleveland Ohio	FirstEnergy Corp: CEI	RFC	Y	Y	N	346,000	0	N/A	Severe Weather - Hurricane Sandy	Y	Y	N
EIA	10/29/2012 16:00	223.8	Eastern Pennsylvania	FirstEnergy Corp: Met-Ed	RFC	Y	Y	N	270,000	0	N/A	Severe Weather - Hurricane Sandy	Y	Y	N
EIA	10/29/2012 16:00	241.1	Maryland; West Virginia	FirstEnergy Corp: Potomac Edison	RFC	Y	Y	N	150,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	N
EIA	10/29/2012 16:01	243.0	Greater New York City, New York	Consolidated Edison Co-NY Inc	NPCC	Y	Y	N	818,000	0	N/A	Severe Weather - Hurricane Sandy	Y	Y	N
EIA	10/29/2012 16:03	188.0	New Jersey	PSE&G	NPCC	Y	Y	N	50,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	N
EIA	10/29/2012 16:45	42.3	New Hampshire	ISO New England/PSNH	NPCC	Y	Y	N	50,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	Y
EIA	10/29/2012 17:13	41.8	Greater Baltimore Maryland	Baltimore Gas & Electric Company	RFC	Y	Y	N	219,000	0	N/A	Severe Weather - Hurricane Sandy	Y	Y	Y
EIA	10/29/2012 17:30	174.5	Greater Philadelphia Pennsylvania	Exelon Corporation/PECO	RFC	Y	Y	N	850,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	N
EIA	10/29/2012 18:11	148.6	Central Pennsylvania	PPL Electric Utilities Corp	RFC	Y	Y	N	400,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	Y
EIA	10/29/2012 18:12	25.4	Virginia	Dominion Virginia Power	RFC	Y	Y	N	156,000	520	N/A	Severe Weather - Hurricane Sandy	Y	Y	Y
EIA	10/29/2012 18:46	112.0	Southeast New York; New Jersey	Orange and Rockland Utilities, Inc.	NPCC; RFC	Y	Y	N	200,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	Y
EIA	10/29/2012 18:48	136.8	New York	Iberdrola USA (NYSEG)	NP	Y	Y	N	371,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	Y
EIA	10/29/2012 19:00	82.0	Indiana; Kentucky; Michigan; Ohio	American Electric Power	RFC; SERC	Y	Y	Y	173,273	N/A	N/A	Severe Weather - Nor'easter	N	Y	Y
EIA	10/29/2012 19:15	19.8	Southeast and Seacoast Maine	ISO New England	NPCC	Y	Y	N	50,000	N/A	N/A	Severe Weather - Hurricane Sandy	N	Y	Y
EIA	10/30/2012 2:00	68.0	Greater Detroit Michigan	Detroit Edison Co	RFC	Y	Y	Y	133,777	N/A	N/A	Severe Weather - Nor'easter	N	Y	Y
EIA	11/17/2012 10:00	24.0	Comanche Peak, Texas	ERCOT	TRE	Y	Y	N	0	1,231	N/A	Fuel Supply Deficiency	N	Y	Y
EIA	12/2/2012 5:20	51.7	Northern California	Pacific Gas & Electric Co	WECC	Y	Y	N	125,000	250	N/A	Severe Weather - Winter Storm	Y	Y	Y
EIA	12/6/2012 21:18	0.2	Greater San Jose, California	California Department of Water Resources	WECC	Y	Y	N	N/A	390	N/A	Load Shed	Y	Y	Y
EIA	12/25/2012 0:45	87.5	Arkansas; Louisiana; Mississippi; Texas	Entergy	SPP	Y	Y	N	242,509	N/A	N/A	Severe Weather - Winter Storm	N	Y	Y
EIA	12/25/2012 9:28	31.0	Houston, Texas	CenterPoint Energy	TRE	Y	Y	N	262,000	294	N/A	Severe Weather - Cold Front, High Winds	Y	Y	Y
EIA	12/26/2012 14:50	4.8	Stantonsburg, North Carolina	Town of Stantonsburg - (NC)	SERC	Y	N	N	1,200	3	N/A	Severe Weather - Thunderstorm	Y	Y	Y
EIA	12/31/2012 14:21	2.2	North Carolina	City of Washington - (NC)	SERC	Y	N	N	12,000	40	N/A	Transmission Interruption	Y	Y	Y
EIA	1/17/2013 18:07	73.4	Southwest Virginia, Southern West Virginia	American Electric Power (AEP)	RFC	Y	Y	N	127,000	N/A	N/A	Severe Weather - Winter Storm	N	Y	Y
EIA	1/17/2013 19:02	47.0	Northeast Tennessee	Tennessee Valley Authority	SERC	Y	N	N	80,000	N/A	N/A	Severe Weather - Winter Storm	N	Y	Y
EIA	1/17/2013 20:35	0.8	Elizabeth City, North Carolina	North Carolina Eastern M P A	SERC	Y	N	N	12,000	40	N/A	Distribution Interruption	#N/A	Y	Y
EIA	1/20/2013 3:30	74.7	Southeastern Michigan	Detroit Edison Co	RFC	Y	Y	Y	146,500	N/A	N/A	Severe Weather - Wind Storm	N	Y	Y

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EIA	1/31/2013 3:05	1.7	Central and Eastern Virginia	Dominion Virginia Power	SERC	Y	Y	N	119,000	188	N/A	Severe Weather - Wind Storm	Y	Y	Y
EIA	1/31/2013 6:30	3.5	Connecticut	ISO New England	NPCC	Y	Y	N	75,000	75	N/A	Severe Weather - Wind Storm	Y	Y	Y
EIA	2/8/2013 11:38	2.6	District of Columbia; Prince George's County Maryland	Potomac Electric Power Company	RFC	Y	Y	N	52,000	140	N/A	Equipment Trip & Failure	Y	Y	Y
EIA	2/8/2013 20:00	72.5	Central and eastern Massachusetts; Rhode Island	ISO New England/National Grid	NPCC	Y	Y	N	50,000	N/A	N/A	Severe Weather - Winter Storm Nemo	N	Y	Y
EIA	2/8/2013 20:55	79.1	Boston area and Southeast Massachusetts	ISO New England/NSTAR	NPCC	Y	Y	N	50,000	N/A	N/A	Severe Weather - Winter Storm Nemo	N	Y	Y
EIA	2/10/2013 19:46	0.5	Puerto Rico	Puerto Rico Electric Power Authority	N/A	N	N	N	N/A	350	N/A	Generator Trip; Voltage Reduction	Y	Y	Y
EIA	2/13/2013 17:39	48.2	Eastern Massachusetts	Footprint Power Salem Harbor Operations LLC	NPCC	Y	Y	N	1	1	N/A	Fuel Supply Emergency - Petroleum	N	Y	Y
EIA	2/19/2013 16:01	20.9	Stockton, California	Pacific Gas & Electric Co.	WECC	Y	N	N	6,810	13,850	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	2/26/2013 13:00	69.0	Northern Missouri	Associated Electric Coop, Inc	SERC	Y	Y	Y	56,444	N/A	N/A	Severe Weather - Winter Storm Nemo	N	Y	Y
EIA	3/3/2013 6:39	3.8	Merced County, California	Pacific Gas & Electric Co	WECC	Y	Y	N	58,850	300	N/A	Transmission System Interruption	Y	Y	Y
EIA	3/4/2013 9:49	12.2	Metropolitan area Puerto Rico	Puerto Rico Electric Power Authority	N/A	N	N	N	N/A	N/A	N/A	Equipment Failure; Transmission System Interruption	N	Y	Y
EIA	3/6/2013 8:22	26.1	Northwest Virginia	Dominion Virginia Power	SERC	Y	Y	N	233,000	400	N/A	Severe Weather - Winter Storm	Y	Y	Y
EIA	3/18/2013 5:21	0.3	Systemwide Puerto Rico	Puerto Rico Electric Power Authority	N/A	N	N	N	262,937	350	N/A	Generator Trip; Load Shed	Y	Y	Y
EIA	3/18/2013 19:30	43.0	North/Central Alabama; Georgia	Southern Company	SERC	Y	N	N	240,000	800	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	4/18/2013 15:00	60.5	Southeast Michigan, Michigan	Detroit Edison Co	RFC	Y	Y	Y	99,000	N/A	N/A	Severe Weather - Storms and Wind	N	Y	Y
EIA	4/23/2013 0:49	3.2	South of Humboldt California	Pacific Gas & Electric Co	WECC	Y	Y	N	1	80	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	5/1/2013 9:22	0.0	Northeast Colorado	Xcel Energy/Public Service Company of Colorado	WECC	Y	N	N	35,230	123	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	5/2/2013 6:52	3.2	Unknown	WECC	WECC	NA	N	N	N/A	N/A	N/A	Electrical System Separation (Islanding)	N	Y	Y
EIA	5/9/2013 13:21	3.0	Alberta, Canada; Washington State	WECC	WECC	N	N	N	N/A	N/A	N/A	Electrical System Separation (Islanding)	N	Y	Y
EIA	5/13/2013 12:52	N/A	Central California	California Department of Water Resources	WECC	Y	Y	N	N/A	176	N/A	Fuel Supply Emergency - Hydro	N	Y	N
EIA	5/14/2013 0:01	14.0	Portland, Oregon	PacifiCorp	WECC	Y	N	N	N/A	N/A	N/A	Vandalism/Theft	N	Y	Y
EIA	5/20/2013 15:00	50.0	Moore, Oklahoma	Oklahoma Gas & Electric Co	SPP	Y	Y	Y	41,306	N/A	N/A	Severe Weather - Tornados	N	Y	Y
EIA	5/20/2013 17:22	3.8	Gonzales Area Louisiana	Entergy Transmission - SOC	SERC	Y	Y	N	21,800	103	N/A	Generator Trip; Load Shed 100+ MW	Y	Y	Y
EIA	5/22/2013 10:51	0.1	System wide Puerto Rico	Puerto Rico Electric Power Authority	N/A	N	N	N	197,287	280	N/A	System Wide Voltage Reduction	N	Y	Y
EIA	5/29/2013 20:58	41.9	Central and Eastern New York	Niagara Mohawk Power Corp.	NPCC	Y	Y	N	61,795	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	5/31/2013 1:00	0.5	Maumelle, Arkansas	Southwest Power Pool, Inc.	SPP	Y	Y	N	N/A	N/A	N/A	Severe Weather - Lightning	N	Y	Y
EIA	5/31/2013 18:00	88.5	El Reno, S. Oklahoma City, Oklahoma	Oklahoma Gas & Electric Co	SPP	Y	Y	Y	127,000	N/A	N/A	Severe Weather - Tornados	N	Y	Y
EIA	5/31/2013 19:07	19.1	Southeast Kansas, Northeast Oklahoma	Coffeyville Municipal Light and Power	MRO	Y	Y	Y	6,300	102	N/A	Transmission System Interruption	Y	Y	Y
EIA	5/31/2013 19:30	24.5	St. Louis Metro Area Missouri	Ameren Missouri	SERC	Y	Y	Y	100,000	N/A	N/A	Severe Weather - Thunderstorms	N	Y	Y
EIA	6/3/2013 12:50	0.8	Alberta, Canada	WECC RC Vancouver	WECC	N	N	N	N/A	N/A	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	6/13/2013 13:17	28.3	Western Piedmont North Carolina	Duke Energy Carolinas	SERC	Y	N	N	175000	1000	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/13/2013 15:20	29.8	Ohio; Virginia; West Virginia	American Electric Power	RFC; SERC	Y	Y	N	90247	N/A	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/13/2013 15:30	0.5	District of Columbia; Maryland	Potomac Electric Power Company	RFC	Y	Y	N	40000	700	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/13/2013 16:08	25.1	Richmond Metro area, Virginia	Dominion Virginia Power	SERC	Y	Y	N	283000	900	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/13/2013 17:45	24.8	Central and Eastern North Carolina	Duke Energy Progress	SERC	Y	N	N	53000	N/A	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/13/2013 20:47	26.0	Southern Company Territory	Southern Company	SERC	Y	N	N	165798	550	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/17/2013 16:17	2.5	Hillsborough County Florida	Tampa Electric Co	FRCC	Y	N	N	37	180	N/A	Load Shed	Y	Y	Y
EIA	6/18/2013 15:51	0.5	Wyoming	Western Area Power Administration	WECC	Y	N	N	N/A	6	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	6/19/2013 19:57	0.2	Alberta, Canada	Western Electricity Coordinating Council	WECC	N	N	N	N/A	N/A	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	6/21/2013 3:00	129.0	Minnesota	Xcel Energy	MRO	Y	Y	Y	193000	N/A	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/21/2013 17:39	60.3	Minneapolis/St. Paul area Minnesota	Xcel Energy	MRO	Y	Y	Y	400000	N/A	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/23/2013 21:20	4.2	Central Coast California	Pacific Gas & Electric Co	WECC	Y	Y	N	148000	N/A	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/24/2013 19:30	22.3	Illinois	Exelon Corporation/Com Ed	RFC	Y	Y	N	283451	N/A	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/24/2013 19:30	45.5	Indiana	Northern Indiana Public Service Company	RFC	Y	Y	Y	86615	N/A	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/27/2013 17:00	7.0	South Eastern Michigan	Detroit Edison Co	RFC	Y	Y	Y	138000	N/A	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/28/2013 18:02	2.7	Los Angeles and Orange Counties, California	Southern California Edison Co	WECC	Y	Y	N	65255	240	N/A	Equipment Failure/Made Public Appeal	Y	Y	Y
EIA	7/2/2013 14:20	73.2	Alberta, Canada	Western Electricity Coordinating Council	WECC	N	N	N	N/A	200	N/A	Load Shed	Y	Y	Y
EIA	7/3/2013 12:04	0.7	System-wide Puerto Rico	Puerto Rico Electric Power Authority	N/A	N	N	N	393000	480	N/A	Load Shed	Y	Y	Y
EIA	7/10/2013 17:30	26.5	AEP Ohio Power Footprint	American Electric Power	RFC	Y	Y	Y	122314	N/A	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/17/2013 15:30	39.2	Holtsville, New York	Long Island Power Authority	NPCC	Y	Y	N	N/A	417	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/18/2013 11:30	30.0	Upstate New York	Niagara Mohawk Power Corp.	NPCC	Y	Y	N	N/A	N/A	N/A	Public Appeal to Reduce Electricity Usage	Y	Y	Y
EIA	7/18/2013 23:45	10.3	Southern Orange County California	San Diego Gas & Electric Co	WECC	Y	Y	N	123000	200	N/A	Severe Weather - Thunderstorms	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	7/19/2013 18:00	15.0	Michigan	Detroit Edison Co	RFC	Y	Y	Y	156627	N/A	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/19/2013 22:30	45.5	New York	Niagara Mohawk Power Corporation (dba National Grid)	NPCC	Y	Y	N	74300	N/A	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/23/2013 23:38	28.9	Tulsa, Oklahoma	American Electric Power	SPP	Y	Y	N	92748	500	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	8/1/2013 18:54	0.7	Western British Columbia	WECC RC Vancouver	WECC	N	N	N	Unknown	420	N/A	Electrical System Separation (Islanding	Y	Y	N
EIA	8/1/2013 23:19	1.5	Daytona Beach Florida	Florida Power & Light Co	FRCC	Y	N	N	104498	297	N/A	Load Shed 200+ MW	Y	Y	Y
EIA	8/5/2013 18:35	0.2	Alberta, Canada	WECC RC Vancouver	WECC	N	N	N	Unknown	Unknown	N/A	Electrical System Separation (Islanding); Severe Weather	Y	Y	N
EIA	8/7/2013 0:15	21.2	Eastern Central Wisconsin	We Energies	MRO	Y	Y	Y	51160	220	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	8/7/2013 7:30	1.7	Wisconsin	Wisconsin Public Service Corp	MRO	Y	Y	Y	Unknown	Unknown	N/A	Fuel Supply Emergency (Natural Gas & Fuel Oil)	Y	Y	N
EIA	8/16/2013 16:58	31.0	Houston Service Area Texas	CenterPoint Energy	TRE	Y	Y	N	219681	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	8/19/2013 19:06	10.9	Central California	Southern California Edison Co	WECC	Y	Y	N	124000	685	N/A	Severe Weather - Lightning Strike	Y	Y	Y
EIA	8/29/2013 14:57	0.5	Ashland, Wisconsin	Xcel Energy	MRO	Y	Y	Y	7000	15	N/A	Electrical System Separation (Islanding); Severe Weather	Y	Y	Y
EIA	8/30/2013 19:30	6.0	Entire ComEd territory Illinois	Exelon Corporation/ComEd	RFC	Y	Y	N	157000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	9/10/2013 17:42	6.3	Erie, Pennsylvania	PJM Interconnection	RFC	Y	Y	N	Unknown	105	N/A	Load Shed of 100+ MW	Y	Y	N
EIA	9/11/2013 16:00	96.0	Southeastern Michigan	Detroit Edison Co	RFC	Y	Y	Y	75000	400	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	10/21/2013 5:18	0.2	Location Unknown	Pacific Gas & Electric Co	WECC	Y	Y	N	433	115	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	10/27/2013 4:27	18.0	Houston, Texas	CenterPoint Energy	TRE	Y	Y	N	171117	Unknown	N/A	Severe Weather - Hail Storm	Y	Y	Y
EIA	11/2/2013 0:00	54.0	King, Whatcom, and Skagit, Washington	Puget Sound Energy	WECC	Y	N	N	105000	Unknown	N/A	Severe Weather - Heavy Winds	Y	Y	Y
EIA	11/12/2013 9:14	1.3	Eastern Central New Mexico	Farmers' Electric Coop, Inc	SPP	Y	Y	N	Unknown	Unknown	N/A	Loss of Power from Wholesale Provider; Major Distribution Disruption	Y	Y	N
EIA	11/12/2013 14:04	0.0	Valle, California	Pacific Gas & Electric Co	WECC	Y	Y	N	48400	55	N/A	Electrical System Separation (Islanding)	Y	Y	Y
EIA	11/17/2013 7:00	83.9	Michigan	Detroit Edison Co	RFC	Y	Y	Y	325325	Unknown	N/A	Severe Weather - Ice and Snow Storm	Y	Y	Y
EIA	11/17/2013 12:35	1.1	Rochelle, Indiana	City of Rochelle	RFC	Y	Y	Y	7500	38	N/A	System-wide voltage reductions of 3 percent or more	Y	Y	Y
EIA	11/17/2013 12:35	70.4	Central Missouri, Central Illinois	Ameren Missouri	SERC	Y	Y	Y	200000	Unknown	N/A	Severe Weather - Tornadoes	Y	Y	Y
EIA	11/17/2013 13:06	72.0	North Central Indiana	Northern Indiana Public Service Company	RFC	Y	Y	Y	75065	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	11/17/2013 14:31	8.0	Entire ComEd Territory Illinois	Commonwealth Edison Co	RFC	Y	Y	N	190000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	11/17/2013 16:19	25.7	Indiana, Michigan	American Electric Power	RFC	Y	Y	N	77346	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	11/17/2013 16:45	96.0	Entire Lower Peninsula Michigan	Consumers Energy Co	RFC	Y	Y	Y	50000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	11/17/2013 16:47	67.2	Central Indiana	Duke Energy Indiana Inc	RFC	Y	Y	Y	61705	535	N/A	Severe Weather - Tornadoes	Y	Y	Y

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	11/17/2013 16:47	72.0	Central Indiana	Duke Energy Midwest	RFC	Y	Y	Y	61705	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	11/21/2013 19:45	7.6	Northern California	Pacific Gas & Electric Co	WECC	Y	Y	N	89500	150	N/A	Severe Weather - Wind Storm	Y	Y	Y
EIA	12/4/2013 5:00	11.3	Idaho Falls Area Idaho, Utah-Idaho Border Utah	WECC - Loveland	WECC	Y	Y	N	Unknown	150	N/A	Load Shed 100+ MW	Y	Y	N
EIA	12/6/2013 1:51	130.2	Greater Houston, Texas	Oncor Electric Delivery Company LLC	TRE	Y	Y	N	881000	Unknown	N/A	Severe Weather - Ice/Snow	Y	Y	Y
EIA	12/9/2013 6:54	7.5	Virginia Service Territory	Dominion Virginia Power	SERC	Y	N	N	88000	293	N/A	Severe Weather - Ice/Snow	Y	Y	Y
EIA	12/13/2013 11:00	336.0	Texas	Texas Municipal Power Agency	TE	Y	Y	Y	Unknown	Unknown	N/A	Fuel Supply Emergencies (Coal)	Y	Y	N
EIA	12/13/2013 11:00	336.0	Texas	City of Garland	TRE	Y	Y	N	Unknown	Unknown	N/A	Fuel Supply Emergencies (Coal)	Y	Y	N
EIA	12/22/2013 3:28	164.3	Southern Lower Penninsula, Michigan	Consumers Energy Co	RFC	Y	Y	Y	50000	Unknown	N/A	Severe Weather - Ice/Snow	Y	Y	Y
EIA	12/22/2013 6:16	65.7	Frontier/Genesee/ Northern New York	Niagara Mohawk Power Corp.	NPCC	Y	Y	N	59000	Unknown	N/A	Severe Weather - Ice/Snow	Y	Y	Y
EIA	12/22/2013 6:30	70.7	Michigan	Detroit Edison Co	RFC	Y	Y	Y	140735	350	N/A	Severe Weather - Ice/Snow	Y	Y	Y
EIA	12/23/2013 15:20	44.2	Central Maine Maine	Central Maine Power Co	NPCC	Y	Y	N	52500	Unknown	N/A	Severe Weather - Ice/Snow	Y	Y	Y
EIA	1/6/2014 7:01	26.0	Texas	ERCOT	TRE	Y	Y	N	N/A	N/A	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	Y
EIA	1/6/2014 19:50	0.9	Pennsylvania	PPL Electric Utilities Corp	RFC	Y	Y	N	Unknown	Unknown	N/A	Voltage Reduction due to Severe Weather - Cold	Y	Y	N
EIA	1/6/2014 19:50	0.9	Unknown	PJM Interconnection	RFC	Y	Y	N	Unknown	Unknown	N/A	Voltage Reduction due to Severe Weather - Cold	Y	Y	N
EIA	1/6/2014 19:50	0.9	District of Columbia	Potomac Electric Power Co	RFC	Y	Y	N	Unknown	Unknown	N/A	Voltage Reduction due to Severe Weather - Cold	Y	Y	N
EIA	1/6/2014 19:50	1.0	Pennsylvania	UGI Utilities, Inc	RFC	Y	Y	N	62000	200	N/A	Voltage Reduction due to Severe Weather - Cold	Y	Y	Y
EIA	1/6/2014 19:52	0.9	Delaware	Delmarva Power & Light Company	RFC	Y	Y	N	Unknown	Unknown	N/A	Voltage Reduction due to Severe Weather - Cold	Y	Y	N
EIA	1/6/2014 20:45	24.2	Unknown	PJM Interconnection	RFC	Y	Y	N	Unknown	Unknown	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	N
EIA	1/6/2014 22:00	0.0	Kentucky	Louisville Gas & Electric Co	RFC	Y	N	N	Unknown	Unknown	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	N
EIA	1/7/2014 6:00	2.5	Tennessee	Memphis Light Gas and Water Division	SERC	Y	N	N	Unknown	Unknown	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	N
EIA	1/7/2014 6:00	2.5	Northeast Tennessee	Tennessee Valley Authority	SERC	Y	N	N	Unknown	Unknown	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	N
EIA	1/7/2014 7:58	3.0	North Carolina	Duke Energy Progress	SERC	Y	N	N	Unknown	14435	N/A	Voltage Reduction; Public Appeal due to Severe Weather - Cold	Y	Y	N
EIA	1/7/2014 9:30	24.0	Piedmont North Carolina, Piedmont South Carolina	Duke Energy Carolinas	SERC	Y	N	N	Unknown	Unknown	N/A	Fuel Supply Emergency due to Severe Weather - Cold	Y	Y	N
EIA	1/7/2014 10:59	46.0	Illinois	Prairie Power, Inc.	RFC	Y	Y	Y	N/A	N/A	N/A	Fuel Supply Emergency - Natural Gas	Y	Y	Y
EIA	1/7/2014 16:15	21.1	North Carolina	Duke Energy Progress	SERC	Y	N	N	Unknown	Unknown	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	N

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NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	1/7/2014 18:00	5.0	South Carolina	South Carolina Electric and Gas	SERC	Y	N	N	677858	4853	N/A	Voltage Reduction; Public Appeal; Load Shed 100+MW due to Severe Weather - Cold	Y	Y	Y
EIA	1/7/2014 21:00	12.0	Unknown	PJM Interconnection	RFC	Y	Y	N	Unknown	Unknown	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	N
EIA	1/8/2014 5:00	1.5	Unknown	American Electric Power	RFC	Y	Y	N	Unknown	576	N/A	Voltage Reduction due to Severe Weather - Cold	Y	Y	N
EIA	1/8/2014 6:00	3.0	South Carolina	South Carolina Electric and Gas	SERC	Y	N	N	677858	4545	N/A	Voltage Reduction; Public Appeal; Load Shed 100+MW due to Severe Weather - Cold	Y	Y	Y
EIA	1/18/2014 9:00	0.8	Texas	ERCOT	TRE	Y	Y	N	Unknown	Unknown	N/A	Public Appeal to Reduce Electricity Usage	Y	Y	N
EIA	1/18/2014 17:39	N/A	Unknown	First Energy Solutions Corp.	RFC	Y	Y	N	Unknown	Unknown	N/A	Electrical System Islanding	Y	Y	N
EIA	1/23/2014 4:00	32.0	Tennessee	Memphis Light Gas and Water Division	SERC	Y	N	N	Unknown	Unknown	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	N
EIA	1/23/2014 13:04	19.9	Maryland	PJM Interconnection	RFC	Y	Y	N	Unknown	Unknown	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	N
EIA	1/23/2014 16:00	20.0	Tennessee	Tennessee Valley Authority	SERC	Y	N	N	Unknown	Unknown	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	N
EIA	1/24/2014 0:00	1,811.9	Wisconsin	We Energies	RFC	Y	Y	Y		Unknown	N/A	Fuel Supply Emergency - Coal	Y	Y	N
EIA	1/27/2014 14:20	30.7	Maryland	PJM Interconnection	RFC	Y	Y	N	Unknown	Unknown	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	N
EIA	2/5/2014 0:00	114.0	Maryland, West Virginia	FirstEnergy Corp: Potomac Edison	RFC	Y	Y	N	101580	Unknown	N/A	Severe Weather - Snow/Ice	Y	Y	Y
EIA	2/5/2014 1:00	115.7	Pennsylvania	FirstEnergy Corp: Met-Ed	RFC	Y	Y	N	144000	Unknown	N/A	Severe Weather - Snow/Ice	Y	Y	Y
EIA	2/5/2014 5:00	0.0	Pennsylvania	Exelon Corporation/PECO	RFC	Y	Y	N	715000	Unknown	N/A	Severe Weather - Snow/Ice	Y	Y	Y
EIA	2/5/2014 7:00	432.0	New York	Upstate New York Power Producers	NPCC	Y	Y	N	Unknown	300	N/A	Fuel Supply Emergency - Coal	Y	Y	N
EIA	2/5/2014 7:35	44.5	Lancaster Region, Pennsylvania	PPL Electric Utilities Corp	RFC	Y	Y	N	62159	Unknown	N/A	Severe Weather - Snow/Ice	Y	Y	Y
EIA	2/5/2014 8:05	0.0	Baltimore, Maryland	Baltimore Gas & Electric Company	RFC	Y	Y	N	181000	800	N/A	Severe Weather - Ice	Y	Y	Y
EIA	2/6/2014 13:00	9.0	California	California ISO	WECC	Y	Y	N	Unknown	4000	N/A	Fuel Supply Emergency - Natural Gas	Y	Y	N
EIA	2/6/2014 13:05	6.2	Northern California	Pacific Gas & Electric Co	WECC	Y	Y	N	Unknown	160	N/A	Fuel Supply Emergency - Natural Gas	Y	Y	N
EIA	2/6/2014 13:58	6.7	Rio Grande Valley Texas	American Electric Power	TRE	Y	Y	N	Unknown	Unknown	N/A	Public Appeal to Reduce Electricity Usage	Y	Y	N
EIA	2/6/2014 14:15	5.4	California	Southern California Edison	WECC	Y	Y	N	Unknown	611	N/A	Fuel Supply Emergency - Natural Gas	Y	Y	N
EIA	2/6/2014 15:35	19.9	ERCOT Region Texas	ERCOT	TRE	Y	Y	N	Unknown	Unknown	N/A	Public Appeal to Reduce Electricity Usage	Y	Y	N
EIA	2/7/2014 7:00	1,009.0	Niagara County New York	Somerset Operating Company, LLC	NPCC	Y	Y	N	Unknown	675	N/A	Fuel Supply Emergency - Coal	Y	Y	N

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EIA	2/7/2014 16:30	16.5	ERCOT Region Texas	ERCOT	TRE	Y	Y	N	Unknown	Unknown	N/A	Public Appeal to Reduce Electricity Usage	Y	Y	N
EIA	2/7/2014 16:50	3.7	Texas	American Electric Power	TRE	Y	Y	N	Unknown	Unknown	N/A	Public Appeal to Reduce Electricity Usage	Y	Y	N
EIA	2/12/2014 7:48	68.7	Northern/Northeastern Georgia	Southern Company	SERC	Y	N	N	373835	1246	N/A	Severe Weather - Snow/Ice	Y	Y	Y
EIA	2/12/2014 11:03	69.6	South Carolina	South Carolina Electric and Gas	SERC	Y	N	N	120124	700	N/A	Severe Weather - Snow/Ice	Y	Y	Y
EIA	2/12/2014 12:10	75.2	North Carolina	Duke Energy Progress	SERC	Y	N	N	200000	Unknown	N/A	Severe Weather - Snow/Ice	Y	Y	Y
EIA	2/20/2014 16:40	31.3	Missouri, Illinois	Ameren Missouri	SERC	Y	Y	Y	66000	Unknown	N/A	Severe Weather - Snow/Ice	Y	Y	Y
EIA	2/21/2014 2:53	18.1	Northern/Northeastern Georgia	Southern Company	SERC	Y	N	N	66445	221	N/A	Severe Weather - Thunderstorms/High Winds	Y	Y	Y
EIA	3/2/2014 19:00	38.0	ERCOT Region Texas	ERCOT	TRE	Y	Y	N	N/A	N/A	N/A	Public Appeal due to Severe Weather - Cold	Y	Y	Y
EIA	3/3/2014 1:48	0.0	Mid-Columbia River Generation, Washington	Public Utility District #1 of Chelan County (CHPD)	WECC	Y	Y	N	Unknown	630	N/A	Fuel Supply Emergency - Hydro	Y	Y	N
EIA	3/3/2014 6:40	8.8	Tennessee	Tennessee Valley Authority	SERC	Y	N	N	65904	Unknown	N/A	Severe Weather - Winter Storm	Y	Y	Y
EIA	3/4/2014 9:06	312.0	Weston, Wisconsin	Wisconsin Public Service Corp	MRO	Y	Y	Y	Unknown	Unknown	N/A	Fuel Supply Emergency - Coal	Y	Y	N
EIA	3/7/2014 3:30	17.5	Triad, North Carolina	Duke Energy Carolinas	SERC	Y	N	N	370900	1500	N/A	Severe Weather - Winter Storm	Y	Y	Y
EIA	3/12/2014 19:35	16.4	North Carolina	Duke Energy Carolinas	SERC	Y	N	N	61377	250	N/A	Severe Weather - High Winds	Y	Y	Y
EIA	3/26/2014 13:37	0.9	Montana	Peak Reliability	WECC	Y	Y	Y	Unknown	Unknown	N/A	Electrical System Separation (Islanding)	Y	Y	N
EIA	3/31/2014 15:41	4.5	Puerto Rico	Puerto Rico Electric Power Authority	N/A	N	N	N	Unknown	Unknown	N/A	System Wide Voltage Reduction	Y	Y	N
EIA	4/3/2014 0:00	N/A	Texas	City of Garland / Texas Municipal Power Agency	TRE	Y	Y	N	Unknown	Unknown	N/A	Fuel Supply Emergency - Coal	Y	Y	N
EIA	4/3/2014 14:45	141.1	Wisconsin	We Energies	MRO	Y	Y	Y	Unknown	Unknown	N/A	Fuel Supply Emergency - Coal	Y	Y	N
EIA	4/4/2014 3:30	4.7	Central Arkansas	Entergy Services, Inc.	SERC	Y	Y	Y	57200	Unknown	N/A	Severe Weather - Wind	Y	Y	Y
EIA	4/8/2014 11:09	0.2	Puerto Rico	Puerto Rico Electric Power Authority	N/A	N	N	N	Unknown	Unknown	N/A	Voltage Reduction	Y	Y	N
EIA	4/12/2014 18:15	38.8	Western and Central Michigan	Consumers Energy	RFC	Y	Y	Y	50000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	4/12/2014 20:00	71.5	Michigan	Detroit Edison Company	RFC	Y	Y	Y	164000	Unknown	N/A	Severe Weather	Y	Y	Y
EIA	4/23/2014 19:45	0.9	Baton Rouge, Louisiana	MISO / Entergy Transmission	SERC	Y	Y	Y	28000	163	N/A	Load shedding of 100 Megawatts	Y	Y	Y
EIA	4/24/2014 15:02	2.2	Alberta, Canada	Peak Reliability	WECC	N	N	N	Unknown	Unknown	N/A	Electrical System Separation (Islanding)	Y	Y	N
EIA	4/27/2014 9:15	N/A	Alberta, Canada	Peak Reliability	WECC	N	N	N	4000000	9750	N/A	Electrical System Separation (Islanding)	Y	Y	N
EIA	4/29/2014 9:37	47.4	Northeastern Mississippi, Northern Alabama	Tennessee Valley Authority	SERC	Y	N	N	57000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	4/29/2014 23:30	N/A	Mississippi, Alabama	Southern Company	SERC	Y	N	N	106648	355	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	4/30/2014 3:50	10.2	Alabama, Florida, Georgia	Southern Company	SERC	Y	N	N	89000	296	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	5/9/2014 18:00	43.0	Indiana	Vectren Energy Delivery of Indiana	RFC	Y	Y	Y	56000	Unknown	N/A	Severe Weather - Heavy Winds	Y	Y	Y

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EIA	5/14/2014 15:34	ongoing	San Diego & Orange Counties, California	San Diego Gas & Electric Company	WECC	Y	Y	N	N/A	N/A	N/A	Public Appeal to Reduce Electricity Usage - Wild Fires	Y	Y	N
EIA	5/15/2014 10:43	ongoing	San Diego & Orange Counties, California	San Diego Gas & Electric Co	WECC	Y	Y	N	Unknown	3300	N/A	Public Appeal to Reduce Electricity Usage - Wild Fires	Y	Y	N
EIA	5/16/2014 10:43	10.3	San Diego & Orange Counties, California	San Diego Gas & Electric Co	WECC	Y	Y	N	Unknown	3900	N/A	Public Appeal to Reduce Electricity Usage - Wild Fires	Y	Y	N
EIA	5/26/2014 12:31	0.8	British Columbia & Alberta, Canada	Peak Reliability	WECC	N	N	N	Unknown	Unknown	N/A	Electrical System Separation (Islanding)	Y	Y	N
EIA	6/3/2014 15:32	0.5	Alberta, Canada	Peak Reliability	WECC	N	N	N	N/A	338	N/A	Electrical System Islanding	Y	Y	Y
EIA	6/5/2014 3:00	68.8	Shelby County, Tennessee	Memphis Light Gas and Water Division	SERC	Y	N	N	38,500	494	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/5/2014 13:06	0.0	West Tennessee	Tennessee Valley Authority	SERC	Y	N	N	56,475	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/6/2014 13:00	N/A	Texas	Luminant Energy Company, LLC	ERCOT	Y	Y	N	Unknown	Unknown	N/A	Fuel Supply Emergency - Coal	Y	Y	N
EIA	6/7/2014 23:00	6.5	North and Central , Alabama	Southern Company	SERC	Y	N	N	65,000	217	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/9/2014 11:07	0.4	Alberta, Canada	Peak Reliability	WECC	N	N	N	Unknown	Unknown	N/A	Electrical System Islanding	Y	Y	N
EIA	6/10/2014 21:50	16.7	West Virginia	American Electric Power	RFC	Y	N	N	66,383	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/15/2014 0:00	1.0	Central Minnesota	Xcel Energy	MRO	Y	Y	Y	55,951	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/18/2014 17:00	46.0	Southeast Michigan	Detroit Edison Co	RFC	Y	Y	Y	138,802	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/27/2014 13:21	N/A	Wisconsin	We Energies	MRO	Y	Y	Y	Unknown	Unknown	N/A	Fuel Supply Emergency - Coal	Y	Y	N
EIA	6/30/2014 17:55	9.0	Southeast Wisconsin	We Energies	MRO	Y	Y	Y	120,000	424	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/30/2014 20:00	46.5	Illinois	Exelon Corporation/Com Ed	RFC	Y	Y	N	420,000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	6/30/2014 23:20	17.7	North Central Indiana	Northern Indiana Public Service Company	RFC	Y	Y	Y	127,000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/1/2014 3:30	N/A	Southwest Michigan	Consumers Energy Co	RFC	Y	Y	Y	51,000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/1/2014 4:00	67.5	Southeast Michigan	Detroit Edison Co	RFC	Y	Y	Y	140,000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/1/2014 5:00	21.0	Indiana, Michigan	American Electric Power	RFC	Y	Y	Y	57,237	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/2/2014 8:39	630.6	Wisconsin	We Energies	MRO	Y	Y	Y	Unknown	Unknown	N/A	Fuel Supply Emergency - Coal	Y	Y	N
EIA	7/3/2014 18:00	66.0	Pennsylvania	Exelon Corporation/PEC O	RFC	Y	Y	N	298,165	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/3/2014 22:55	2.9	Vermont, New Hampshire, Maine, Rhode Island, Massachusetts, Connecticut	ISO New England	NPCC	Y	Y	N	64,000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/8/2014 17:30	45.5	Central and Northeastern Pennsylvania	PPL Electric Utilities Corp	RFC	Y	Y	N	66,000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/8/2014 17:30	101.8	Maryland, West Virginia	FirstEnergy Corp: Potomac Edison	RFC	Y	Y	N	96,000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/8/2014 17:30	102.0	West Virginia	FirstEnergy Corp: Mon Power	RFC	Y	Y	N	71,000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/8/2014 18:00	71.9	Eastern Pennsylvania	FirstEnergy Corp: Met-Ed	RFC	Y	Y	N	69,000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/8/2014 19:21	59.6	Upstate New York	Niagara Mohawk Power Corporation (dba National Grid)	NPCC	Y	Y	N	65,000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y

MISO

2014 Value Proposition
Improved Reliability Benefit - Disturbance Database

NERC or EIA	Start Date & Time	Duration (Hours)	CtrlAreaID / Area Affected	Associated Utilities	RegionID	In US Region?	In RTO Region?	In MISO Region?	Customers No.	Demand Loss (MW)	NERC Type	Disturbance Cause	Primary Filter	Secondary Filter	Threshold Filter
EIA	7/8/2014 20:30	74.5	Pennsylvania	Exelon Corporation/PECO	RFC	Y	Y	N	260,000	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/8/2014 21:31	N/A	Maryland	Baltimore Gas & Electric Company	RFC	Y	Y	N	56,600	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/23/2014 19:14	5.2	Arkansas, Louisiana	American Electric Power	SERC	Y	Y	Y	57,299	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/24/2014 16:29	7.1	California	Southern California Edison	WECC	Y	Y	N	26,856	126	N/A	Load shedding of 100 Megawatts	Y	Y	Y
EIA	7/27/2014 17:00	30.0	Southeast Michigan	Detroit Edison Co	RFC	Y	Y	Y	156,611	Unknown	N/A	Severe Weather - Thunderstorms	Y	Y	Y
EIA	7/27/2014 23:00	5.0	Central California	California Department of Water Resources	WECC	Y	Y	N	1	480	N/A	Uncontrolled Loss of 300 Megawatts	Y	Y	Y

2014 Value Proposition

February 2015

The 2014 Value Proposition study shows that MISO provides between $2.2 and $3.1 billion in annual economic benefits to its region

What is the MISO Value Proposition?

The Value Proposition study is a quantification of value provided by MISO to the region including the entire set of MISO market participants and their customers

This value is provided through improved grid reliability and increased efficiencies in the use of generation resources enabled by MISO market operations

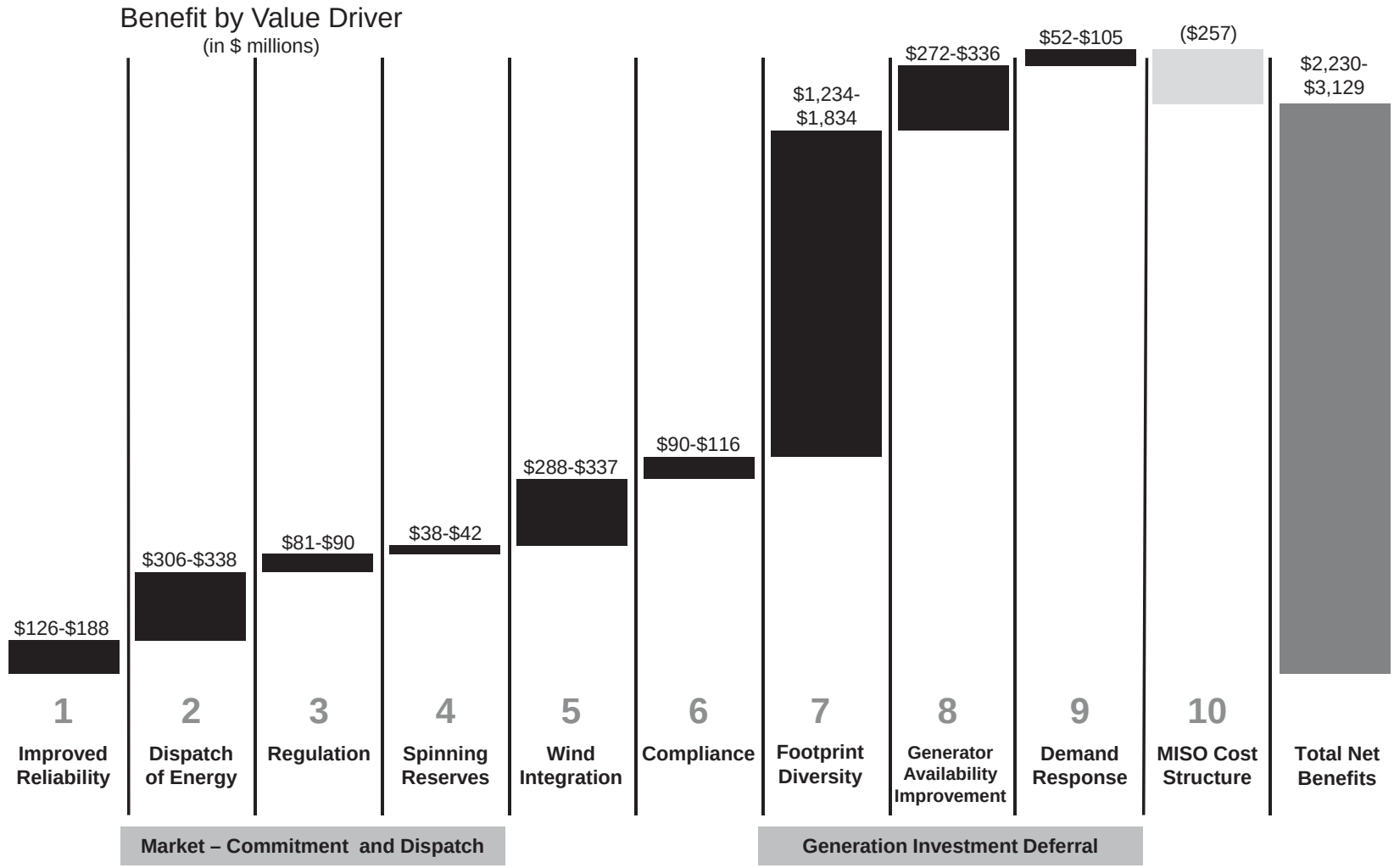
The Value Proposition incorporates benefits from the integration of the South region in December 2013

What the MISO Value Proposition is NOT

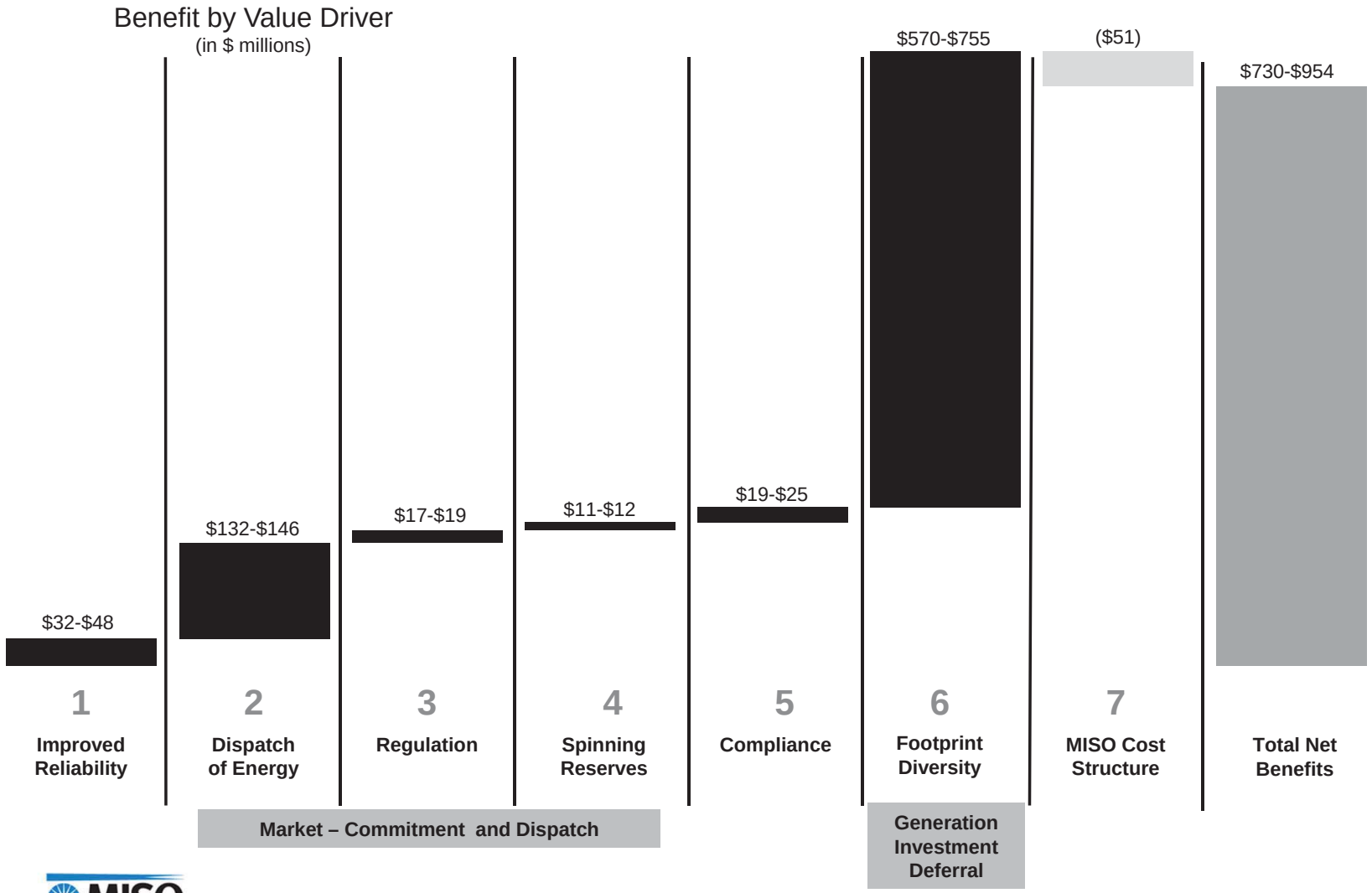
The Value Proposition study does not calculate savings received by individual market participants as a result of MISO membership

The Value Proposition study does not calculate the value for any individual market sector or state

The MISO 2014 Value Proposition



The MISO 2014 Value Proposition – South Region



MISO's operating practices exceed industry standard practices, allowing enhanced reliability in its footprint

1 | Improved Reliability

	Industry Standard Practice	MISO Practice
System Monitoring and Visualization	• Real-time monitoring using SCADA on a local area basis • Use of standard vendor supplied displays • Operator interface of standard monitor display screen augmented with static map board • Ad-hoc and off-line voltage security analysis review	• Regional view/monitoring of the power system including: – A State Estimator - runs every 60 seconds – Contingency analysis of over 12,700 contingencies every four minutes – 24-hour shift engineer coverage responsible for maintaining security application performance • Extended use of custom tools and displays to allow for faster analysis and better situational awareness • Large video wallboard (14' X 165') that provides operators with live data reflecting the state of the power system and real-time market results • Real-time Voltage Stability Analysis Tool (VSAT) and Transmission Security Assessment Tool (TSAT), which allow comprehensive analyses of system operating conditions for predicting and preventing voltage insecurity
Congestion Management	• Performed using NERC Transmission Loading Relief (TLR) process or internally developed operating procedure based on congestion management system • 30 – 60 minute response time	• Market-based congestion management that relies on a five-minute security constrained economic dispatch to mitigate transmission congestion on a least-cost basis allows for more timely and efficient congestion management • Look Ahead Commitment Tool provides unit commitments, de-commitments, online extension recommendations for congestion management, and models near-real-time conditions to utilize resource capabilities
Backup Capabilities	• Offline and/or scaled down backup facility • Significant time to bring backup facility up in the event a failover or failback is needed • Testing of failover process performed annually	• 24 x 7 staffed back-up control center • On-line back-up facility with full coverage of power system and market applications • Less than 10 minutes required for failover or failback for critical applications • Testing of failover process is performed monthly for critical applications

MISO's operating practices exceed industry standard practices, allowing enhanced reliability in its footprint

1 | Improved Reliability

	Industry Standard Practice	MISO Practice
Operator Training	• Classroom training only • Train to meet minimum NERC requirements • Five-person rotation (no training rotation) • Offline power system restoration procedure review	• Training methods include extensive use of full-dispatch training simulator • Training exceeds NERC requirements • Six-person rotation at key operator positions (allowing a training week during each cycle) • Annually conduct a regional "live" power system restoration drill that includes dozens of companies in the region
Performance Monitoring	• Performance reviewed on a "post-event" basis • Operator call review on a "post-event" basis	• Daily review of operational performance including: – Extensive review of established operational metrics – Monthly tracking of improvements – Frequent near-term performance feedback to operators and support personnel – Routine review of upcoming operational events • Standardized operator call review process incorporating established metrics that score calls for each operator on a routine basis • Feedback provided to each operator
Procedure Updates	• Procedures updated on an ad-hoc, as-needed basis	• Annual procedure review conducted on all control room procedures • Routine drills including member participation conducted on capacity emergency procedures and abnormal procedures • Annual Emergency Operating Procedures workshop with members and adjacent reliability coordinators

The Transmission System Availability Index can be used to evaluate the value of the improved reliability

1 | Improved Reliability

Reliability Benefit

=

Transmission System Availability Index (TSAI)
- Measured as a percent

X

MISO Load
- Measured in MWh

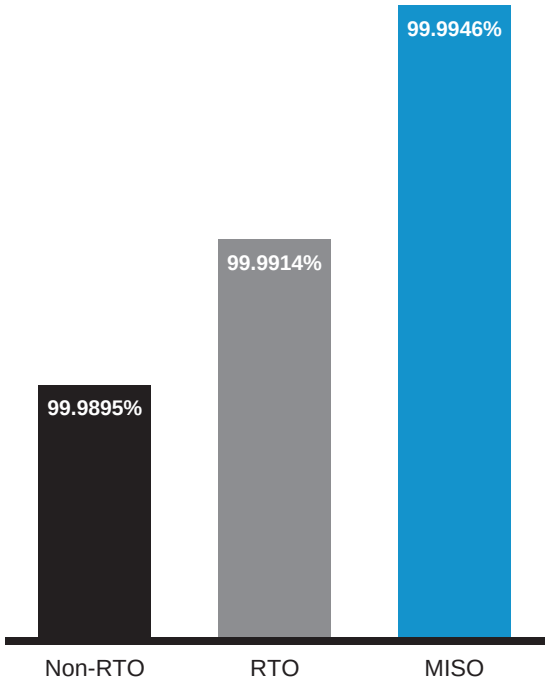
X

Cost of Outage
- Measured in cost per MWh

Analysis of NERC and Energy Information Administration outage data reveals that RTO regions serve their load more reliably…

1 | Improved Reliability

Transmission System Availability Index (TSAI)[1,3]



TSAI Formulas

$$TSAI = 1 - \frac{\text{Sum of MWh Load Interrupted}}{\text{Sum of MWh Load Interrupted} + \text{Sum of MWh Load Served}}$$

$$\sum_{\text{\# of disturbances}}^{1} \left(\text{Duration (hrs) X Disturbance Size (MW) X Load Loss Recovery Factor}^{2}\ (0.67) \right)$$

[1]Disturbances with outages exceeding 1,000,000 customers and/or outage durations longer than one week were excluded from the analysis as it was assumed those characteristics fit the profile of a distribution-level disturbance
[2]The Load Loss Recovery Factor is used to account for the progressive recovery of load during an outage
[3]Data collected from: (a) NERC, 2000-2007 & 2009 disturbance data, (b) U.S. Energy Information Administration, 2000-2014 disturbance data, (c) U.S. Energy Information Administration, EIA-826 Database from August 2013 – July 2014, and (d) 2013 FERC Form 714s for individual ISO/RTOs

…providing between $126 and $188 million in annual benefits to the region

1 | Improved Reliability

		Reliability Benefit Low Estimate	Reliability Benefit High Estimate
	Transmission System Availability Index (TSAI)	RTO 99.991409% Non-RTO 99.989450% Difference 0.001959%	RTO 99.991409% Non-RTO 99.989450% Difference 0.001959%
X	MISO Load[1]	667,405,974 MWh	667,405,974 MWh
X	Cost of Outage	$9,609 per MWh[2]	$14,414 per MWh[2]
=	Reliability Benefit ($ in Mils.)	**$126**	**$188**

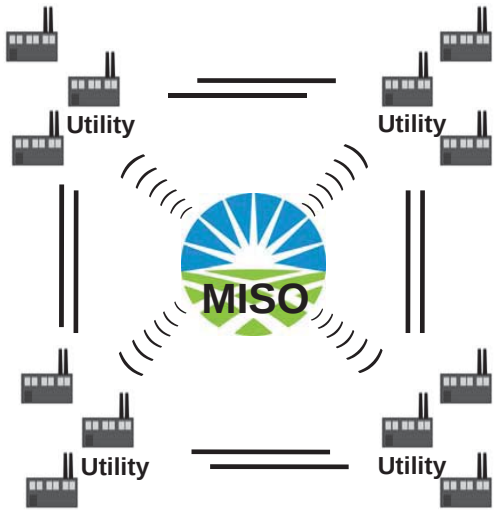
[1]MISO load from Oct 2013 to Sep 2014 was used to approximate MISO's 2014 load. Information obtained from FERC Form 714 data and public MISO market reports.
[2]ICF, "The Economic Cost of the Blackout." The ICF paper defined a cost of outage range to be $7,440 to $11,160 per MWh. This range is supported by survey-based studies that estimate an electric consumer's (i.e. residential, commercial, industrial, and others) willingness-to-pay to avoid such outages. The cost of outage was adjusted from 2003 dollars to 2014 dollars using Actual CPI from the Bureau of Labor Statistics.

The Energy Market provides the region with a more efficient means of committing/dispatching generation

2 | Dispatch of Energy

Historical Perspective

Prior to MISO's creation the region operated as a decentralized, bilateral market. Transmission operations and bilateral power transactions were characterized by physical transmission constraints managed through mechanisms that limited transmission utilization, high transaction costs, low market transparency, pancaked transmission rates, decentralized unit commitment and dispatch.



What changed with MISO?

MISO's real-time and day-ahead energy markets use security constrained unit commitment and centralized economic dispatch to optimize the use of all resources within the region based on bids and offers provided by Market Participants.

The day-ahead market is a forward financial market for energy. Its clearing process produces a set of financially binding schedules according to which sellers are financially responsible to deliver and purchasers are financially responsible to buy energy at defined locations. The day-ahead market process is based upon a unit commitment model that minimizes total production costs over 24 hours. The primary purpose of the day-ahead market is to clear and schedule sufficient supply to satisfy cleared day-ahead demand, using a set of resources that minimize production costs. The purpose of the real-time market is similar, but is based on actual rather than bid demand and must also function to determine economic re-dispatch to manage congestion dynamically.

The improved commitment and dispatch provide between $306 and $338 million in annual benefits

2 | Dispatch of Energy

Assumptions / Inputs

- Modeled based on the MISO Commercial and Network Model
- Analysis performed in PROMOD®
- Pre-MISO market analysis
  - Transmission system utilization was de-rated by 10%
  - Hurdle rates between control areas: $3 for dispatch hurdle rate and $10 for commitment hurdle rate
- Post-MISO market analysis
  - Improved transmission system utilization by 10%
  - Hurdle rates between control areas were eliminated
  - 1,000 MW contract path capacity limit between MISO North/Central and South regions modeled with a hurdle rate of $10 to allow transactions that are economic at that level

Calculation Methodology

This benefit is best modeled by using an industry standard technique called production cost modeling. Analysis by a number of independent firms has consistently found that a market, such as MISO's, that centrally commits and dispatches generation for a large region will be more cost-efficient than dividing that same generation portfolio into a number of sub-regions and then committing and dispatching them.

Low Estimate ($ in Mils.)	$306
High Estimate ($ in Mils.)	$338

Ancillary Service Markets have resulted in reduced regulation requirements and improved commitment and dispatch efficiency

3 | Regulation

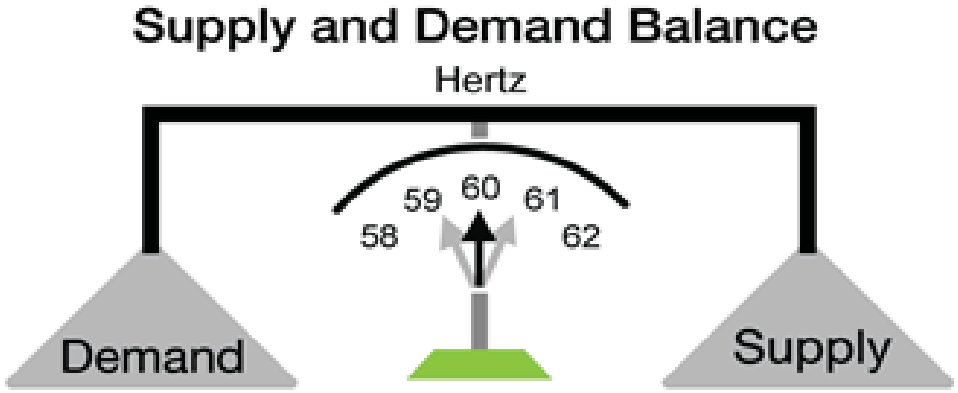
Historical Perspective

Prior to the launch of MISO's Regulation Market each Balancing Authority (BA) maintained regulation within its area. This often resulted in the BAs within MISO's footprint working "against" each other – some regulating up while others were regulating down.

What changed with MISO?

With the start of MISO's Regulation Market the amount of regulation required within the MISO footprint has dropped significantly. This is a result of working towards a centralized common footprint regulation target rather than a number of non-coordinated regulation targets within the footprint.

The implementation of the Regulation Market also changed the pricing mechanism for regulation by moving from tariff pricing to market pricing. This pricing change is not a true benefit from an economic perspective and, therefore, is not included in the Value Proposition. The effects of the new pricing mechanism for Regulation are tracked and reported in MISO's monthly market operations report.



Those regulation-related improvements result in $81 to $90 million in annual benefits

3 Regulation

Assumptions / Inputs	
Pre-ASM average regulation[1]	1,559 MW
Post-ASM average regulation[2]	397 MW
Regulation reduction	1,162 MW
Production cost savings per MW[3]	$69,819 – Low case $77,168 – High case

Calculation Methodology

- The reduced requirements for regulation frees up low cost generation units (where regulation was previously held) to serve the energy needs of the region. This component is valued using production cost analysis
- Calculation is based on the difference between pre-ASM and post-ASM regulation multiplied by the production cost savings per MW

Low Estimate ($ in Mils.)	$81
High Estimate ($ in Mils.)	$90

[1]Pre-ASM MISO average regulation (MW) from 4/1/2005 to 12/31/2008 and adjusted for membership changes
[2]Post-ASM average regulation (MW) from October 2013 to September 2014 from October 2014 MISO Informational Forum presentation
[3]Based on MISO production cost modeling using PROMOD® software

Similarly, the ASM has resulted in reduced spinning reserve requirements and improved efficiency

4 | Spinning Reserves

Historical Perspective

Pre-Contingency Reserve Sharing Group (CRSG)
Each Balancing Authority (BA) determined their spinning reserve requirement based on their individual (or Reserve Sharing Group) standards.

Post-CRSG/Pre-Ancillary Services Market (ASM)
Each BA determined their spinning reserve requirement based on the CRSG standards.

Post-ASM
MISO determines their spinning reserve requirement based on CRSG requirements.

What changed with MISO?

Starting with the formation of the CRSG and continuing with the implementation of the Spinning Reserve Market, the total spinning reserve requirement has been significantly reduced. This reduced requirement frees up low cost capacity to meet energy market needs.

The implementation of the Spinning Reserve Market also changed the pricing mechanism for spinning reserves by moving from tariff pricing to market pricing. This pricing change is not a true benefit from an economic perspective. Therefore it is not included in the Value Proposition. The affects of the new pricing mechanism for spinning reserves are tracked and reported in MISO's monthly market operations report.

Those spin-related improvements provide annual benefits of $38 and $42 million

4 | Spinning Reserves

Assumptions / Inputs	
Pre-ASM average spinning reserves requirement[1]	1,482 MW
Post-ASM average spinning reserves requirement[2]	935 MW
Spinning reserves requirement reduction	547 MW
Production cost savings per MW[3]	$69,819 – Low case $77,168 – High case

Calculation Methodology

- The reduced requirements for spinning reserves frees up low cost generation units (where spinning reserves were previously held) to serve the energy needs of the region. This component is valued using production cost analysis
- Calculation is based on difference between pre-ASM and post-ASM spinning reserves multiplied by the production cost savings per MW

Low Estimate ($ in Mils.)	$38
High Estimate ($ in Mils.)	$42

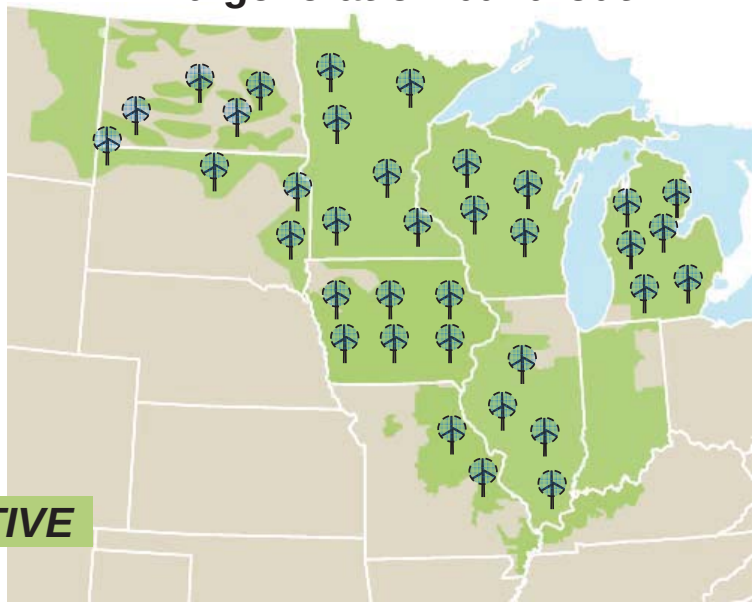
[1]2006 Spinning Reserves (based on reserve requirement of 2,635 MW multiplied by 45%) adjusted for membership changes
[2]Monthly weighted average spinning reserve requirement (MW) from October 2013 to September 2014 from MISO's 2014 October Informational Forum presentation
[3]Based on MISO production cost modeling using PROMOD® software

MISO's regional planning enables more economic placement of wind resources in the North/Central region[1]

5 | Wind Integration

Local design of wind generation build-out

Combination design of wind generation build-out



ILLUSTRATIVE

Local Design = Renewable energy requirements and goals will be met with resources within the same state as the load

Combination Design = Renewable energy requirements and goals will be met with a combination of local resources and resources outside of the state with high ranking renewable energy zones

[1] The wind integration benefit is based on work done for the Regional Generation Outlet Study II and includes the MISO North/Central footprint only.

The economic benefit of optimizing wind into MISO's footprint is $288 to $337 million in annual benefits

5 | Wind Integration

Assumptions / Inputs

	2010 to 2014
Wind turbine build	
Local – without MISO[1]	6,414 MW
Combination – with MISO[2]	5,781 MW
Cumulative wind savings	633 MW
Wind turbine cost midpoint[3] (in millions)	
Local – without MISO	$46,923
Combination – with MISO	$40,819
Difference	$6,104
Cost/MW[4]	$2,205,187–Low estimate $2,755,941–High estimate

Calculation Methodology

- Avoided cost benefit annualized using an estimated revenue requirement. The annual revenue requirement is calculated using an annual charge rate that includes a rate of return, property tax rate, insurance cost rate, fixed O&M, and depreciation. Annual charge rate calculated using EGEAS software.
- Calculation does NOT include any production cost savings from either the wind generation or the congestion relief from new transmission. As these benefits occur they will be reflected in the Dispatch of Energy benefit.

Low Estimate ($ in Mils.)	$288
High Estimate ($ in Mils.)	$337

[1]Wind build out without MISO for 2010 to 2014 was calculated based on the results of the Regional Generation Outlet Study II (RGOS II). RGOS II was modified to include the MISO North/Central footprint only. RGOS II results (modified for the MISO footprint) showed that wind turbines required to meet renewable energy mandates may be reduced by approximately 11% through the combination design siting methodology. The 11% additional wind under the local design was applied to the actual wind added in MISO's footprint to calculate the wind build out in the region without MISO.
[2]Registered wind added to MISO footprint from 1/1/2010 to 9/30/2014
[3]Wind turbine costs shown reflect midpoint of low and high fixed charges for entire book life (25 years) of turbine
[4]High and low estimate of the initial book value of a 1 MW onshore wind turbine generator. Estimates calculated using EGEAS software. Book/tax life = 25/15 years.

MISO adds both quantitative and qualitative value by performing several compliance activities on behalf of its members

6 Compliance

	Before MISO	With MISO
Standards Development	• Utilities were varied in their approach to standards engagement. Many have historically been "standards takers," relying on the good judgment of others in the industry to develop standards. This worked well in a voluntary compliance environment.	• By collaborating and participating in the standards creation, MISO and its members can better manage the ultimate compliance responsibilities • MISO engages in several NERC drafting teams to actively manage the scope of standards development and to limit the number of changes required to MISO and stakeholders • MISO's collaborative efforts lighten the workload on all members for a given level of input and control of the process
NERC Compliance	• Many parties in the MISO region were responsible for managing NERC compliance: – 3 Reliability Coordinators – 20+ Interchange Authorities – 20+ Transmission Service Providers – 20+ Balancing Authorities (BA) – Several Planning Authorities – Individual Reserve Sharing Administration	• With MISO as the central balancing authority in the region, many compliance responsibilities have consolidated and member responsibilities have decreased: – 1 Reliability Coordinator – MISO – 1 Interchange Authority – MISO – 1 Transmission Service Provider – MISO – Significantly fewer BA Compliance Requirements – LBAs – Fewer Planning Authorities – Single Reserve Sharing Administrator – MISO – Centralization of some Transmission Operator Requirements – MISO • Allows members to avoid hiring compliance-dedicated staff or reduce existing compliance-driven staff to track these compliance-related issues
Tariff Compliance	• Each utility managed the compliance of their individual tariffs and their separate OASIS functions	• Under MISO, tariff compliance was consolidated thereby saving time and money for our members

MISO has quantified the compliance activities performed on behalf of its members for our Transmission Asset Management (TAM) and Operations areas of the company

6 Compliance

TAM Tariff, Order 890 and Order 1000 Compliance

- Through performing the studies and processes described in our FERC approved Tariff, MISO supports the long-term transmission planning and compliance of our members. In particular, MISO's compliance efforts support the following areas:
  - Long Term Expansion Planning
  - Resource Adequacy
  - Generator Interconnection
  - Loss of Load Expectation
  - Transmission Service Requests
  - FERC 715 Market Rates Filing
  - System Support Resource Studies
- MISO's planning process provides mechanisms to ensure that the regional planning process is open, transparent, coordinated, includes both reliability and economic planning considerations, and includes mechanisms for equitable cost sharing of expansion costs
- 41 Transmission Owners (TOs) signed our Order 890 proposal and are listed in Attachment FF-4, while 50 TOs were MISO members the majority of 2014

TAM NERC Compliance

- Through performing the compliance activities required for our NERC Planning Coordinator role, MISO enables our members to avoid hiring extra staff to track these compliance related issues. TAM's NERC compliance efforts include the following areas:
  - Long Term Expansion Planning
  - Seasonal Assessments, including studies on
    - Transmission
    - Generation
    - Resource Adequacy

Operations

Operations ensures compliance with NERC requirements applicable to a Reliability Coordinator, Balancing Authority, Transmission Service Provider, and Interchange Authority; and with the MISO Tariff

MISO manages over 3,500 requirements

MISO's compliance activities provide between $90 and $116 million in annual benefits to the region

6 | Compliance

Assumptions / Inputs

Full-time equivalents (FTEs) savings[1]

- Transmission Asset Management
  - Tariff Compliance: 5.6 - 9.4
  - Order 890 Compliance: 6.0 - 9.8
  - NERC Compliance: 4.5 - 5.3
- Operations Compliance: 34.5

Affected members[2]

Large-size members: 3 - 4
Medium-size members : 7 - 9
Small-size members: 23 - 29

Hourly rates

Internal rate: $66/hr (70% - 90% of hours)
External rate: $95-175/hr (10% - 30% of hours)

Calculation Methodology

- The full-time equivalents savings were based on internal MISO analysis
- The compliance benefit was calculated by multiplying the estimated FTEs needed to perform each compliance activity, the affected members, and the labor rate per hour.

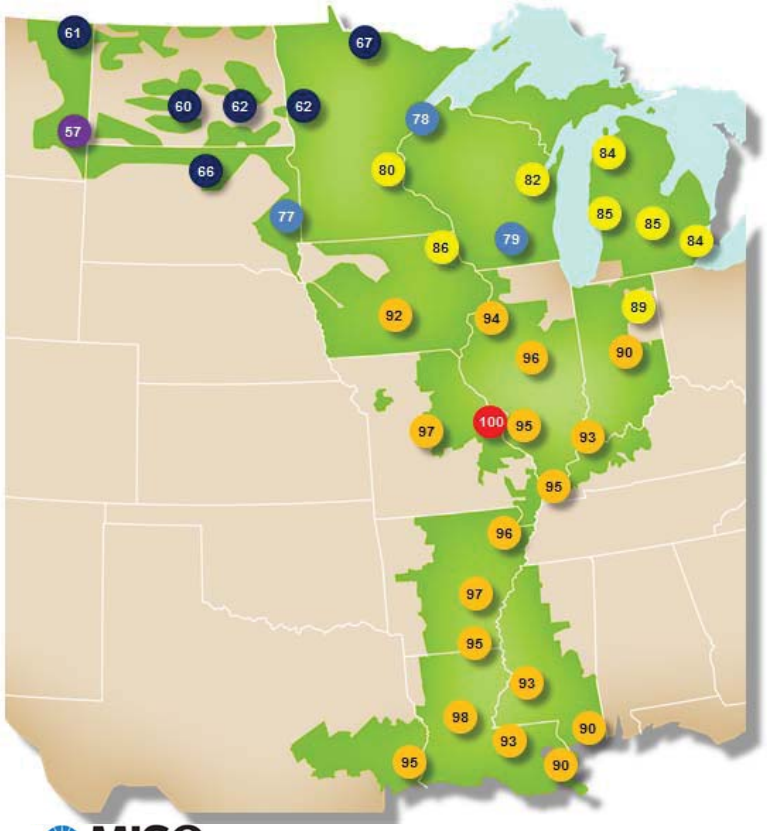
Low Estimate ($ in Mils.)	$90
High Estimate ($ in Mils.)	$116

[1]Full-time equivalents (FTEs) for large-size members based on internal MISO analysis. Medium-size members estimated to save 1/3 of a large-size member's FTEs. Small-size members estimated to save 1/6 of a large-size member's FTEs.
[2]Members were divided into large, medium, and small based on their electric sales (in MWh). Members with sales above 50 million MWhs are classified as large. Medium-size members have electric sales between 10 million and 50 million MWhs. Small-size members have electric sales below 10 million MWhs.
MISO members with multiple operating utilities were counted as one member because it was assumed their service company operated a majority of their compliance functions.

MISO's large footprint increases the load diversity, allowing for a decrease in regional planning reserve margins for Local Resource Zones from 18.08% to 14.98%

7 | Footprint Diversity

High Temperatures on August 25, 2014
MISO Monthly Peak of 115 GW



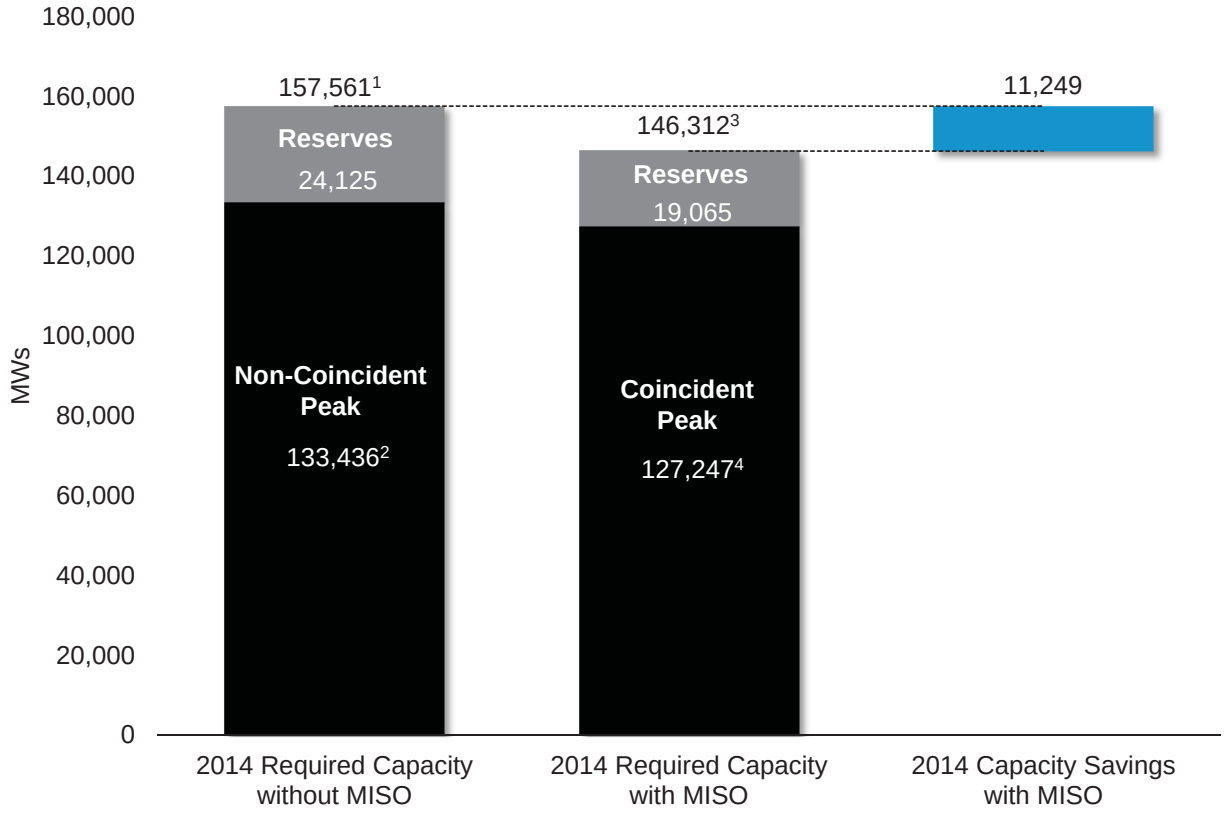
Load Diversity Explained

The high temperature map illustrates that the peak for each Load Serving Entity (LSE) does not occur at the same time.

Prior to MISO, individual LSEs maintained reserves based on their monthly peak load forecasts. Due to MISO's broad and diverse footprint, LSEs now maintain reserves based on their load at the time of the MISO system-wide peak. This creates significant savings.

MISO's footprint diversity delays the need to construct 11,249 MW of additional capacity

7 | Footprint Diversity



[1]Estimated "without MISO" 2014 Local Reliability Requirement (installed capacity basis) based on an average of the Local Resource Zones local reliability requirements; assumes 3,103 MW of import capability of firm external purchases (per 2014 LOLE study)
[2]Forecasted 2014 non-coincident peak provided to MISO by LSE's in accordance with Module E-1 for the 2014-2015 Resource Adequacy Planning Year
[3]2014 forecasted MISO coincident peak utilized in the 2014 Planning Resource Adequacy auction and adjusted for the Planning Reserve Margin (PRM) [127,247 MW] X (1 + PRM%[14.98%]). The 14.98% is a blended rate of the North/Central Region PRM of 14.8% and the South Region PRM of 15.55%
[4]Forecasted 2014 MISO coincident peak utilized to determine the Resource Adequacy requirement in the 2014 Planning Resource Auction

MISO's footprint diversity results in annual benefits of between $1,234 and $1,834 million

7 | Footprint Diversity

Assumptions / Inputs	
2014 planning reserve margin[1]	14.98%
2014 required capacity without MISO[2]	157,561 MW
2014 required capacity with MISO[3]	146,312 MW
Capital investment avoided, 2014	9,341 MW – Low est. 11,249 MW – High est.
Cost/MW[4]	$748,072–Low estimate $935,632–High estimate

Calculation Methodology

- The shift from localized use of the electrical system to regional use allows more efficient and effective use of the generation assets and allows a reduction in the planning reserve margins for the region
- Avoided cost benefit annualized using an estimated revenue requirement. The annual revenue requirement is calculated using an annual charge rate that includes a rate of return, property tax rate, insurance cost rate, fixed O&M, and depreciation. Annual charge rate calculated using EGEAS software

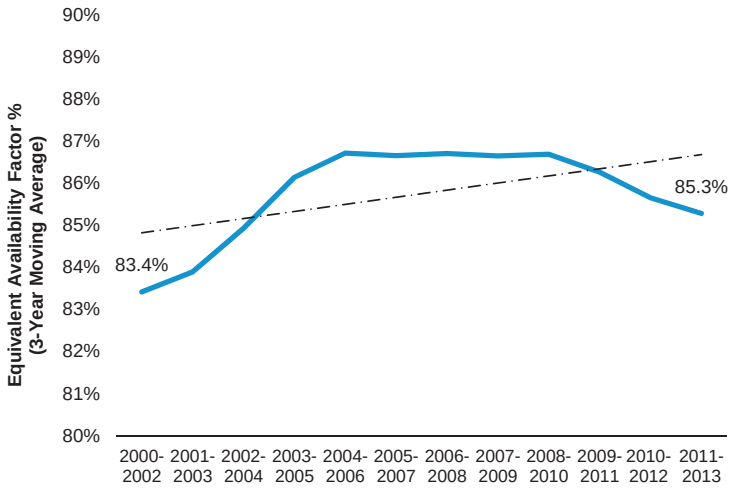
Low Estimate ($ in Mils.)	$1,234
High Estimate ($ in Mils.)	$1,834

[1]2014 MISO required planning reserve margin from the 2014 LOLE study. The 14.98% is a blended rate of the North/Central Region PRM of 14.8% and the South Region PRM of 15.55%.
[2]Estimated "without MISO" 2014 Local Reliability Requirement (installed capacity basis) based on an average of the Local Resource Zones local reliability requirements; assumes 3,103 MW of import capability of firm external purchases (per 2014 LOLE study).
[3]2014 forecasted MISO coincident peak utilized in the 2014 Resource Adequacy auction adjusted for the Planning Reserve Margin [127,247 MW] X (1 + PRM%[14.98%])
[4]High and low estimate of the initial book value of a 1 MW combustion turbine generator. Estimates calculated using EGEAS software. Book/tax life = 30/15 years.

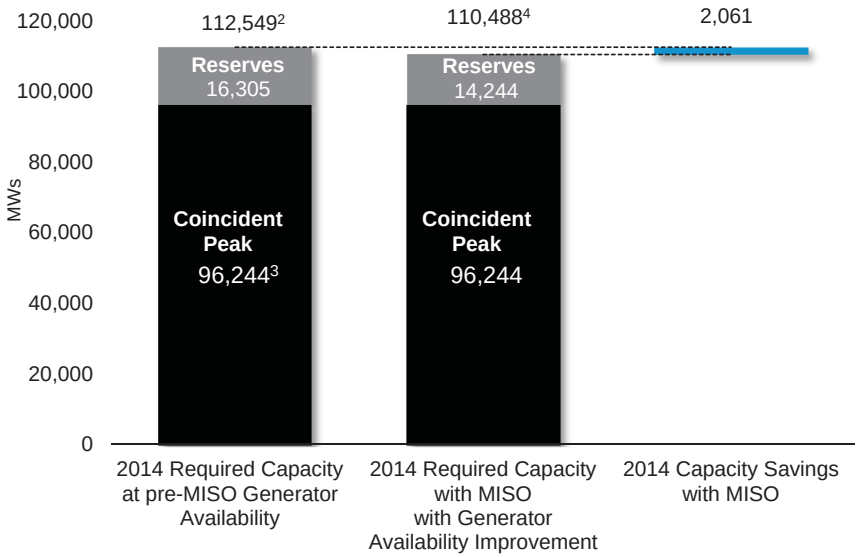
MISO's wholesale power market has resulted in power plant availability improvements of 1.9%, delaying the need to construct 2,061 MW of new capacity

8 | Generator Availability Improvement

Generator Availability – All Units[1]



2014 With and Without MISO Comparison



[1]The generator availability improvement is calculated using Generator Availability Data System (GADS) data from 2000 to 2013. The equivalent availability factor (EAF) metric is used which is a measure of the actual maximum capability of a unit to generate electricity relative to the theoretically possible amount. Because 2014 data was not available, this benefit does not include the South Region.
[2]2014 required capacity with MISO North/Central adjusted for the planning reserve margin [110,488] multiplied by (1 + generator availability improvement % [1.87%])
[3]2014 forecasted MISO North/Central coincident peak used to determine the Resource Adequacy requirement utilized in the 2014 Planning Resource auction
[4]2014 forecasted MISO North/Central coincident peak used to determine the Resource Adequacy requirement utilized in the 2014 Planning Resource auction [96,244 MW] X (1 + PRM%[14.8%])

The delay in capacity construction results in an annual benefit of between $272 to $336 million

8 | Generator Availability Improvement

Assumptions / Inputs

2014 planning reserve margin[1]	14.8%
Generator availability improvement[2]	1.87%
2014 required MW capacity at pre-MISO generator availability[3]	112,549 MW
2014 required MW capacity with MISO generator availability improvement[4]	110,488 MW
Capital investment avoided, 2014	2,061 MW
Cost/MW[5]	$748,072–Low estimate $935,632–High estimate

Calculation Methodology

- Competitive wholesale power markets provide generation owners incentives to achieve higher power plant availability and lower forced outage rates, which reduces the need for constructing new generation capacity
- Avoided cost benefit annualized using an estimated revenue requirement. The annual revenue requirement is calculated using an annual charge rate that includes a rate of return, property tax rate, insurance cost rate, fixed O&M, and depreciation. Annual charge rate calculated using EGEAS software

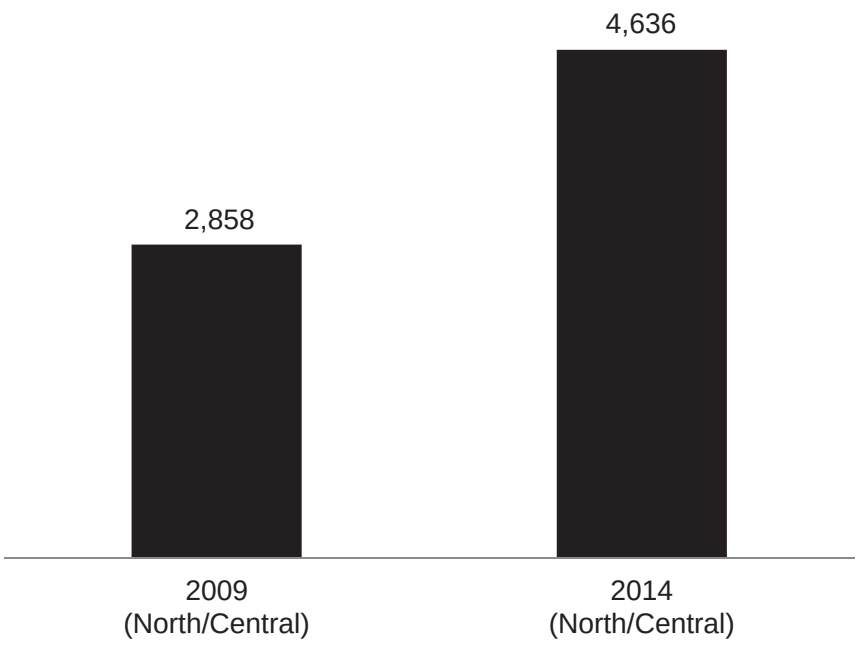
Low Estimate ($ in Mils.)	$272
High Estimate ($ in Mils.)	$336

[1]MISO's Planning Year 2014 LOLE Study Report for MISO North/Central regions
[2]The generator availability improvement is calculated using Generator Availability Data System (GADS) data from 2000 to 2013. The equivalent availability factor (EAF) metric is used which is a measure of the actual maximum capability of a unit to generate electricity relative to the theoretically possible amount. Because 2014 data was not available, this benefit does not include the South Region.
[3]2014 required capacity with MISO North/Central adjusted for the Planning Reserve Margin [110,488 MW] multiplied by (1 + generator availability improvement [1.87%])
[4]2014 forecasted MISO North/Central coincident peak used to determine the Resource Adequacy requirement utilized in the 2014 Planning Resource auction [96,244 MW] X (1 + PRM%[14.8%])
[5]High and low estimate of the initial book value of a 1 MW combustion turbine generator. Estimates calculated using EGEAS software. Book/tax life = 30/15 years.

Demand Response (DR) allows additional generation investment deferral

9 Demand Response

2009 vs. 2014 Total Committed Demand Response (DR) in MISO (MW)



MISO Helps Enable Demand Response

- MISO provides transparent price information to market participants with load reducing capabilities
  - These market signals aid in Market Participant investment decisions related to existing and new resources
- MISO recognizes and compensates four types of demand response:
  - Demand Response Resource Type I (Energy / Capacity)
  - Demand Response Resource Type II (Energy / Capacity)
  - Demand Response as a Load Modifying Resource (Capacity)
  - Emergency Demand Response (Energy during Emergencies)

Demand Response (DR) allows additional generation investment deferral resulting in annual benefits of $52 to $105 million

9 | Demand Response

Assumptions / Inputs

2009 to 2014 Incremental Committed DR in MISO[1]	1,778 MW
% of incremental DR assumed facilitated by MISO	25% - 40%
Capacity deferred due to incremental DR facilitated by MISO	445 MW – 711 MW
Cost/MW[3]	$748,072 – Low estimate $935,632 – High estimate

Calculation Methodology

Capacity deferred due to incremental Demand Response facilitated by MISO was applied to an avoided cost benefit annualized using an estimated revenue requirement. The annual revenue requirement is calculated using an annual charge rate that includes a rate of return, property tax rate, insurance cost rate, fixed O&M, and depreciation. Annual charge rate calculated using EGEAS software.

Low Estimate ($ in Mils.)	$52
High Estimate ($ in Mils.)	$105

[1]2014 total Demand Response committed in MISO North/Central regions less 2009 total Demand Response committed in MISO. Amounts were adjusted to include the losses and reserves that are avoided when Demand Response is utilized
[2]High and low estimate of the initial book value of a 1 MW combustion turbine generator. Estimates calculated using EGEAS software. Book/tax life = 30/15 years.

Administrative and operating costs represent a small percentage of the benefits

10 Cost Structure

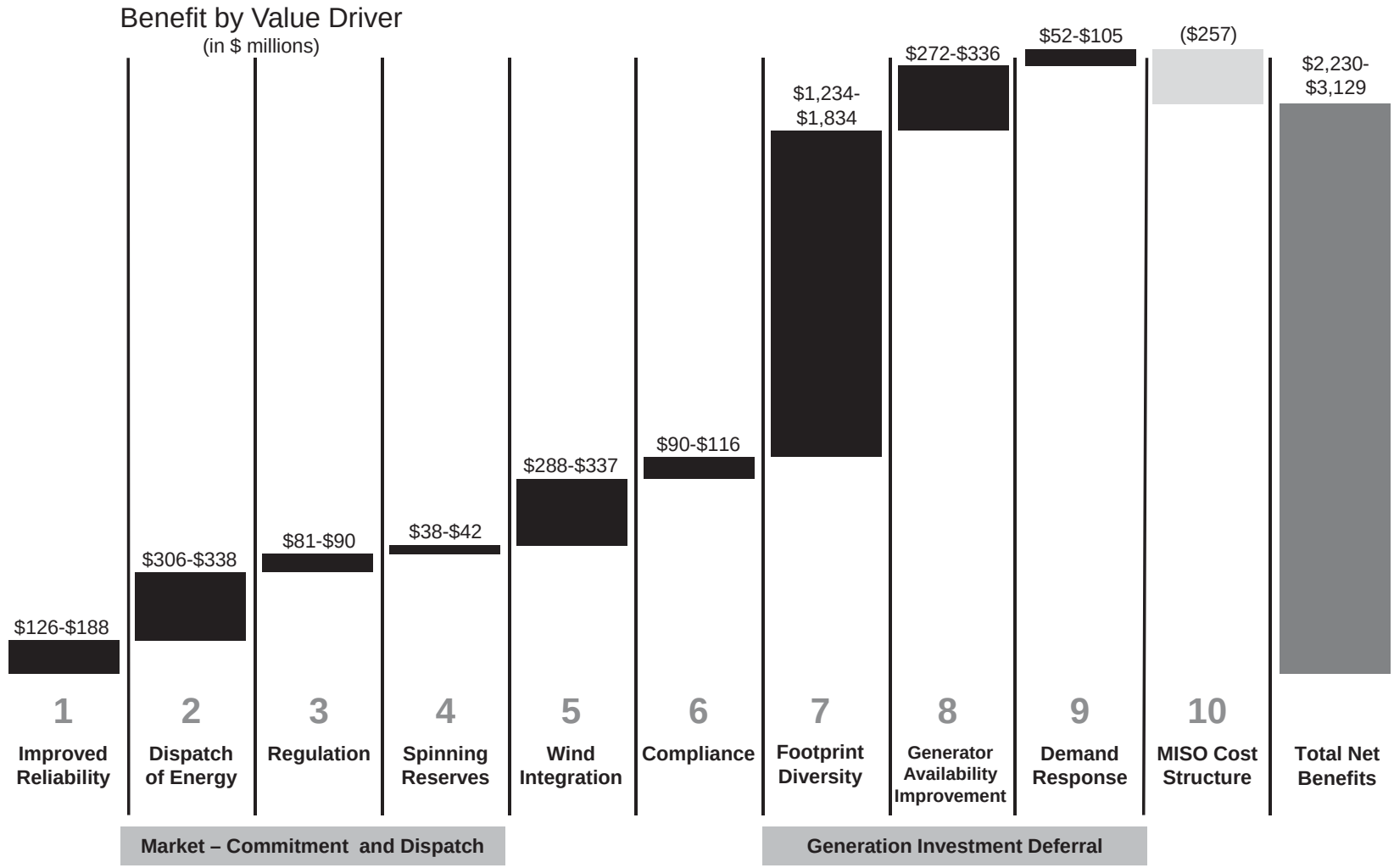
MISO Operating Costs[1]

(in Mils.)

Cost Recovery Category	2014
Schedule 10	$125.3
Schedule 16	$14.5
Schedule 17	$114.1
Schedule 31	$3.3
Total Operating Cost	$257.2

[1]MISO Schedule 10, 16, 17 & 31 Budget for 2014
Note: MISO's administrative and operating costs encompass the material costs incurred by its members. There are additional cost impacts (both increases and decreases) that are incurred, but we deem these costs to be small and not have a material impact on the overall value that MISO provides.

The MISO 2014 Value Proposition



The MISO 2014 Value Proposition – Qualitative Benefits

1 Price/Informational Transparency

2 Planning Coordination

3 Seams Management

Price and data transparency in the MISO market provides a host of benefits

1 | Price/Informational Transparency

	Before MISO	With MISO
Efficiency	• Bilateral markets lack price and data transparency, leaving participants searching for which plants are operating at what cost	• Every market participant can see pricing and information that results in increased market efficiencies
Investment	• Bilateral markets provided insufficient price signals which resulted in inefficient investment and placement of generation resources and transmission infrastructure	• Price signals sent by MISO's energy market provides investors in generation assets with the underlying data upon which they can anchor forecasts for future wholesale prices and provide the basis for market driven investments
Reliability	• Bilateral markets achieve reliability based on contractual rights and industry standards with little thought to economic impacts	• MISO enhances reliability by informing all market participants on the state of grid conditions and market operations through the public posting of electricity prices and other key system information • A reflection of real-time system conditions, high market prices in the MISO energy market provides specific signals where more generation is needed and valued while lower market prices indicate the reverse

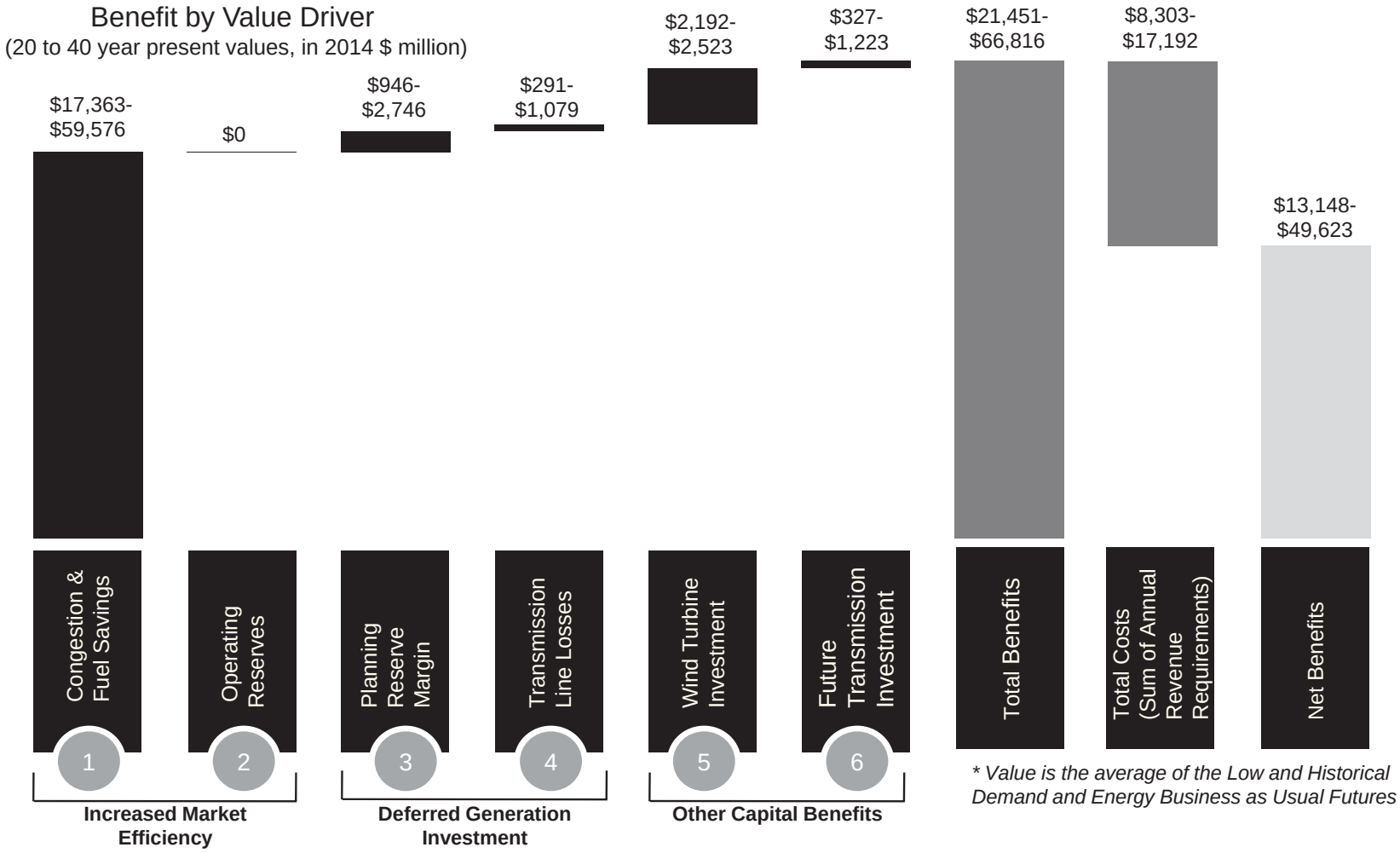
MISO's transmission planning process is focused on minimizing the total cost of delivered power to consumers

	Before MISO	With MISO
Transmission Expansion Planning Model	• Reliability-based model – Focused primarily on grid reliability – Typically considers a short time horizon – Seeks to minimize transmission build	• Value-based model – Focused on value while maintaining reliability – Reflects appropriate time scales – Seeks to identify transmission infrastructure that maximizes value – Identifies the comprehensive value (reliability, economic, and policy) of projects
Planning Scale and Efficiency	• Local view – Objective of expansion is to address local needs – 26 individual entities optimizing the system within their area	• Regional view – Objective of expansion is to address aggregate regional needs consistent with value-based plans in addition to meeting local needs – Offers opportunities to find efficiencies across multiple Transmission Owners
Cost Allocation	• Free rider issues caused by a lack of alignment between transmission cost and the causers and beneficiaries	• MISO helps facilitate the cost allocation of transmission to minimize free rider issues • MISO regional cost allocation matches costs roughly commensurate with beneficiaries

MISO adds value by managing the seams around its footprint

	Before MISO	With MISO
Interchange Transactions	• In order to avoid congestion, a utility or balancing authority (BA) would have seams agreements with each neighbor to monitor their flowgates when selling transmission service. Lacking such agreements, service was sold ignoring neighbors' flowgates with Transmission Loading Relief (TLR)—the only effective congestion management process. If firm service was sold, curtailment had implications to the owner of the firm service, and made the service unavailable when needed.	• Seams agreements between MISO and its neighbors eliminate the need for individual agreements between utilities or BAs • These agreements reduce the likelihood of parallel flows causing overloads on flowgates and the need to use TLRs to manage congestion except when unexpected events occur
Market Flows And Allocations	• A utility or BA served its own interests by classifying all of its generation to load flows as firm so the flows would not be curtailed. This would cause parallel flow issues for neighboring BAs in that firm flow curtailment using TLR had wide ranging implications. This required the utility or BA experiencing congestion to redispatch without compensation in order to manage parallel flow impacts from others.	• The seams agreements between MISO, PJM and SPP provide flowgate allocations between the seams parties that limit the amount of firm market flows. This requires the parties to the seams agreement to classify some of their respective market flows as non-firm so they can be curtailed using TLR. Having each market classify some of its market flows as non-firm means these flows are then subject to curtailment using TLR along with other non-firm usages.
Market-to-Market Process	• When congestion occurred within the MISO region or PJM's footprint, the IDC assigned tag curtailments and/or market flow relief obligations to the flows. Prior to having a market-to-market process, utilities in the MISO and PJM regions would bind their own flowgates based on the relief obligation from the IDC without regard to the cost of redispatch in order to meet the relief obligation.	• Under the market-to-market process, MISO and PJM both bind a coordinated flowgate with the objective of using the most cost effective generation to manage the congestion. There is an after-the-fact settlement used to compensate for assistance provided by the other market. By having both markets bind on a constraint located in one market, this sends the proper price signals to both markets and will help achieve price convergence at the border. MISO expects to extend this benefit to the MISO-SPP seam beginning on 3/1/15.

Future benefit - The Multi Value Project Portfolio will create $13.1 - $49.6 billion in net benefits



** Value is the average of the Low and Historical Demand and Energy Business as Usual Futures*

Value Proposition Benefits

MISO members received more than $2.2 billion in annual benefits in 2014 as well as significant qualitative benefits from price transparency, seams management, and planning

MISO's Value Proposition

After launching the energy-only market in 2005, the value MISO adds to the region became apparent. To quantify this value, MISO – in collaboration with its stakeholders – created the MISO Value Proposition. The annual Value Proposition study began in 2007 and quantifies the value MISO provides to its market participants and their customers. The Value Proposition study does not calculate the benefit for any individual market sector or state.

For 2007 through 2014, the Value Proposition studies revealed that the MISO region realized between $10.1 billion to $13.7 billion in cumulative savings. This landmark analysis now serves as a model for other grid operators.

In 2014, MISO members received more than $2.2 billion in annual benefits from increased reliability, access to low-cost energy and coordinated, long-term system planning.

Did you know?

- For 2014, the region realized net benefits of between $2.2 billion and $3.1 billion.
- MISO's established market operations use the lowest-cost generation to meet the electricity needs for the entire region.
- MISO's large scale provides improved reliability at lower cost.
- MISO also provides significant qualitative benefits including:
  - Price and informational transparency
  - System planning
  - Seams management

How MISO Members Benefit

MISO's models, tools and expertise in large-scale analysis capture the benefits associated with planning and operating over a larger region. The diverse generation supply within MISO provides more options and better efficiency for members in meeting the needs of their customers reliably and affordably. MISO's competitive markets provide cost savings, improved reliability and additional independent oversight of the region's transmission and generation facilities.

Key Benefit Drivers

Increased Reliability – MISO's broad regional view, state-of-the-art reliability tool set, and market-based congestion management increase reliability in the region. Increased reliability results in annual savings of $216 to $304 million to the region.

Efficient Market Operations – MISO's real-time and day-ahead energy markets, regulation market and spinning reserve market use security constrained unit commitment and centralized economic dispatch to optimize the use of all resources within the region based on bids and offers by market participants. MISO's efficient market operations results in annual savings of $425 to $470 million.

Wind Integration – MISO's continued efforts in regional planning enables more economic placement of wind resources in the region. Economic placement of wind resources reduces overall capacity needed to meet required wind energy output. MISO's regional planning results in a wind integration benefit of $288 to $337 million.

Generation Investment Deferral – MISO's regional use of the transmission system allows more efficient and effective use of generation assets, reducing the need to build more power plants. These deferrals allow our members to provide lower-cost power to customers without investing in additional generation. Generation investment deferral results in annual savings of $1.5 to $2.3 billion.