



Electric Reliability in Pennsylvania

Prepared for the
2012 Summer Reliability Forum

Pennsylvania Public Utility Commission

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Ensuring Reliable Service in PA

- Partnership
- Continuous process
- Communications are key

- Overview of the 2012 NERC Summer Reliability Assessment
- Items of Interest

Electric Service Reliability Metrics

The *Customer Average Interruption Duration Index* (CAIDI) measures the average duration of service interruptions for affected customers

CAIDI = Minutes Interrupted divided by
Customers Affected

Electric Service Reliability Metrics

The *System Average Interruption Frequency Index* (SAIFI) measures the average frequency of interruptions per total number of customers

SAIFI = Number of Interruptions divided by
Total Number of Customers Served

Electric Service Reliability Metrics

The *System Average Interruption Duration Index* (SAIDI) measures the average duration of service interruptions per total number of customers

SAIDI = Minutes Interrupted divided by Total Number of Customers Served

Performance Benchmark. An EDC's "performance benchmark" is calculated by averaging the EDC's annual, system-wide reliability performance indices over the five-year period directly prior to the implementation of electric restructuring (1994 to 1998). The benchmark is the level of performance that the EDC should strive to achieve and maintain.

Performance Standard. An EDC's "performance standard" is a numerical value that represents the **minimal** performance allowed for each reliability index for a given EDC. Performance standards are based on a percentage of each EDC's historical performance benchmarks.

**Pennsylvania Electric Distribution Company Reliability Data
For The Rolling 12-Months Ended December 31, 2011**

<i>Customer Average Interruption Duration Index (CAIDI)</i>				<i>% Above (+) or Below (-) Benchmark</i>	<i>% Above (+) or Below (-) Standard</i>
<i>EDC</i>	<i>Dec-11</i>	<i>Benchmark</i>	<i>Standard</i>		
<i>Citizens'</i>	126	105	141	20.0	-10.6
<i>Duquesne Light</i>	107	108	130	-0.9	-17.7
<i>Met-Ed (FE)</i>	117	117	140	0.0	-16.4
<i>PECO</i>	135	112	134	20.5	0.7
<i>Penelec (FE)</i>	167	117	141	42.7	18.4
<i>Penn Power (FE)</i>	138	101	121	36.6	14.0
<i>Pike County</i>	223	174	235	28.2	-5.1
<i>PPL</i>	151	145	174	4.1	-13.2
<i>UGI</i>	128	169	228	-24.3	-43.9
<i>Wellsboro</i>	73	124	167	-41.1	-56.3
<i>West Penn (FE)</i>	151	170	204	-11.2	-26.0
<i>System Average Interruption Frequency Index (SAIFI)</i>				<i>% Above (+) or Below (-) Benchmark</i>	<i>% Above (+) or Below (-) Standard</i>
<i>EDC</i>	<i>Dec-11</i>	<i>Benchmark</i>	<i>Standard</i>		
<i>Citizens'</i>	0.35	0.20	0.27	75.0	29.6
<i>Duquesne Light</i>	0.93	1.17	1.40	-20.5	-33.6
<i>Met-Ed (FE)</i>	1.21	1.15	1.38	5.2	-12.3
<i>PECO</i>	1.14	1.23	1.48	-7.3	-23.0
<i>Penelec (FE)</i>	1.40	1.26	1.52	11.1	-7.9
<i>Penn Power (FE)</i>	1.03	1.12	1.34	-8.0	-23.1
<i>Pike County</i>	0.64	0.61	0.82	4.9	-22.0
<i>PPL</i>	1.07	0.98	1.18	9.2	-9.3
<i>UGI</i>	0.95	0.83	1.12	14.5	-15.2
<i>Wellsboro</i>	1.62	1.23	1.66	31.7	-2.4
<i>West Penn (FE)</i>	1.40	1.05	1.26	33.3	11.1
<i>System Average Interruption Duration Index (SAIDI)</i>				<i>% Above (+) or Below (-) Benchmark</i>	<i>% Above (+) or Below (-) Standard</i>
<i>EDC</i>	<i>Dec-11</i>	<i>Benchmark</i>	<i>Standard</i>		
<i>Citizens'</i>	44	21	38	109.5	15.8
<i>Duquesne Light</i>	99	126	182	-21.4	-45.6
<i>Met-Ed (FE)</i>	142	135	194	5.2	-26.8
<i>PECO</i>	154	138	198	11.6	-22.2
<i>Penelec (FE)</i>	233	148	213	57.4	9.4
<i>Penn Power (FE)</i>	143	113	162	26.5	-11.7
<i>Pike County</i>	142	106	194	34.0	-26.8
<i>PPL</i>	162	142	205	14.1	-21.0
<i>UGI</i>	121	140	256	-13.6	-52.7
<i>Wellsboro</i>	119	153	278	-22.2	-57.2
<i>West Penn (FE)</i>	211	179	257	17.9	-17.9

NERC 2012 Summer Reliability Assessment

- Top Reliability Issues for Summer 2012 – Items with potential impacts to Pennsylvania
- Variable generation increases
- Demand-side management is key in maintaining reliability this summer
- Impact of potentially extreme weather events on bulk power system reliability
- Lower global LNG supply may impact LNG-dependent generation in New England

Variable Generation in PJM

- PJM has developed a Wind Power Forecast tool to assist operations.
- On-peak renewable generation is expected as follows:

On-Peak MWs	Wind	Solar	Hydro	Biomass
Nameplate	5,472	111	7,822	1,023
Expected	711	42	7,822	1,023

Demand Side Management in PJM

- Over 11,600 MW of demand side resources were available for Summer 2011, similar amounts are expected for Summer 2012.
- Seeking tariff change with FERC to require more robust reporting to help avoid dispatch of demand response that may not be needed.

Impact of Potentially Extreme Weather Events

- Drought outlook in Eastern PA, some improvement expected.
- Above normal mean temperatures may occur in PJM.
- PJM expects no problems with warm cooling water.
- Any one specific generator outage can be replaced with other resources available.
- No fuel supply issues anticipated.

LNG to New England

- ISO New England is planning for disruptions of global LNG shipped into New England this summer.

Items of Interest

- Detailed review of the Inspection and Maintenance Procedures
- Correlation of I & M procedures and reliability metrics
- Gas and electric interdependencies
 - Gas fired generation
 - Electric fired compressor stations

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