Calculation of
Forced Outage Probability

EPFSTF

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John Hyatt

Monitoring Analytics

PJM Forced Outage Distribution

- **PJM's ORDC includes an increase in demand for reserves based on an assumed distribution of generator forced outage rates.**

- **PJM's proposed probability distribution for the forced outage rate is based on all generators with capacity rights (excluding solar and wind).**

- **For each season/time block, a probability distribution for forced outage MW is formed by multiplying the forced outage rate distribution by the average load for the season/time block.**

- **This will overstate the forced outage MW and the ORDC.**

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PJM Forced Outage Distribution

- **PJM data includes 1,250 generators, Summer ICAP 187,700 MW**

- **Average Load (MW)**

	TimeBlock1	TimeBlock2	TimeBlock3	TimeBlock4	TimeBlock5	TimeBlock6
SUMMER	84,474.0	76,932.8	94,311.5	112,983.1	119,370.1	109,002.1
FALL	72,641.8	71,647.7	85,287.5	89,941.1	92,973.0	90,076.9
WINTER	87,102.5	88,912.6	101,127.3	97,262.6	100,103.8	101,611.0
SPRING	72,699.0	72,654.4	85,956.0	87,390.4	87,179.0	87,580.4

- **PJM Expected Forced Outage MW (30 Minutes)**

	TimeBlock1	TimeBlock2	TimeBlock3	TimeBlock4	TimeBlock5	TimeBlock6
Summer	204.8	186.5	228.7	273.9	289.4	264.3
Fall	176.1	173.7	206.8	218.1	225.4	218.4
Winter	211.2	215.6	245.2	235.8	242.7	246.4
Spring	176.3	176.2	208.4	211.9	211.4	212.4

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Additional Discussion Items

- **The forced outage MW distribution should reflect the actual generator mix for each time block rather than assuming that all generators are online all the time.**

- **PJM needs to provide additional information on the derivation of the Mean Time to Failure parameter**
  - **Time period used**
  - **Treatment of generators with limited operating history (new or new to PJM)**
  - **Treatment of retired units**

Monitoring Analytics

Monitoring Analytics, LLC

2621 Van Buren Avenue

Suite 160

Eagleville, PA

19403

(610) 271-8050

MA@monitoringanalytics.com

www.MonitoringAnalytics.com

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