USF Available Technologies

Technology Transfer Office

Electric Power Distribution Interruption Risk Assessment Calculator (EPDIRAC)

Researchers at the University of South Florida have developed a unique method of assessing the risk of electric interruptions occurring in power distribution networks.

Electricity plays a pivotal role in everyone's life and therefore, the reliability of power distribution systems becomes a priority for power companies. Power interruptions can be costly in terms of service and lost revenue. Even a short power outage could result in hours of downtime and lost power. What the industry requires is a tool that can maximize their savings while optimizing their resources.

The tool named EPDIRAC, defines a probability density function for the number of interruptions (N) that will occur in a specified region in the near future. This will provide discrete quantization of the probability of N or more interruptions occurring, as a percentile with 95% confidence limits. EPDIRAC thus eliminates the need to calculate annual averages for assessing the number of interruptions.

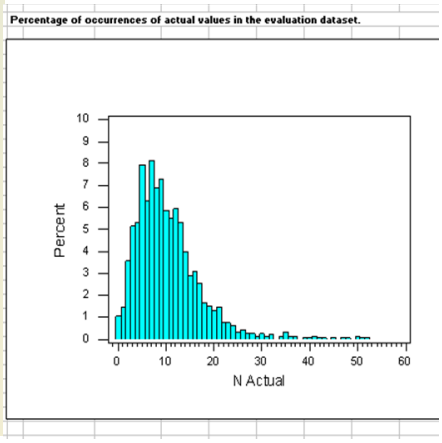
EPDIRAC can be used for planning and optimization of manpower. Results include improved SAIDI (System Average Interruption Duration Index), less downtime, and more power transmission. It thus renders support to build strong reasoning for base rate increase petitions. It also provides the rationale to explain power failures to management/ shareholders. In essence, power utilities can reap short-term and long-term benefits by deploying this system.

ADVANTAGES:

- **Reduces lost revenue with less downtime**
- **Guides optimal staff allocation by predicting failures during normal conditions**
- **Return on Investment < 2 years**
- **Negligible maintenance cost–no change in existing distribution system**
- **Portable and easy to install**
- **Multiple licenses are possible**

Unique Product that Boosts

Power Distribution System Reliability!



N	%P N or Fewer	%P N or more
5	2.17	100.00
6	4.35	97.83
7	6.52	95.65
8	8.70	93.48
9	13.04	91.30
10	15.22	86.96
11	21.74	84.78
12	26.09	78.26
13	34.78	73.91
14	45.65	65.22
15	47.83	54.35
16	58.70	52.17
17	60.87	41.30
18	71.74	39.13
19	78.26	28.26
20	82.61	21.74
21	86.96	17.39
22	91.30	13.04
23	95.65	8.70
25	97.83	4.35
37	100.00	2.17

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