

Normalizing Reliability for Weather

IEEE Task Force on Weather Normalization of Reliability Indices

Tom Short, EPRI

Task-Force Paper

- ◆ Final draft: ready for presentation at the IEEE PES General meeting in Pittsburgh July 20-24, 2008

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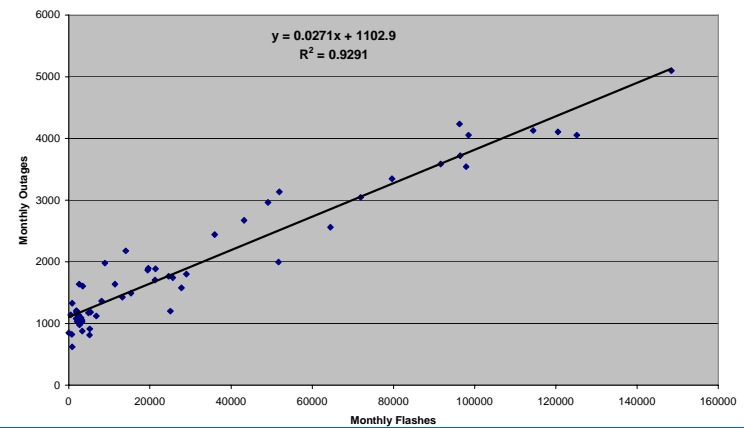
Task Force Paper Outline

- ◆ Weather data
- ◆ Normalization Approaches
 - ◆ Outage Database Indicators of Weather
 - ◆ Modified Beta Methods
 - ◆ Normalizing based on Statistical Correlations
- ◆ Appropriate reliability data to use
- ◆ Statistical correlations

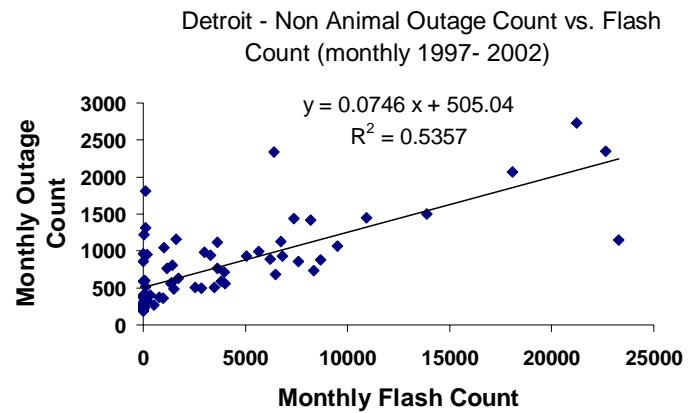
Lightning – Florida

Monthly Flashes vs. Outages (>1994)
Less Animals

Charlie Williams,
Progress Florida



Lightning – Detroit



John McDaniel, Detroit Edison

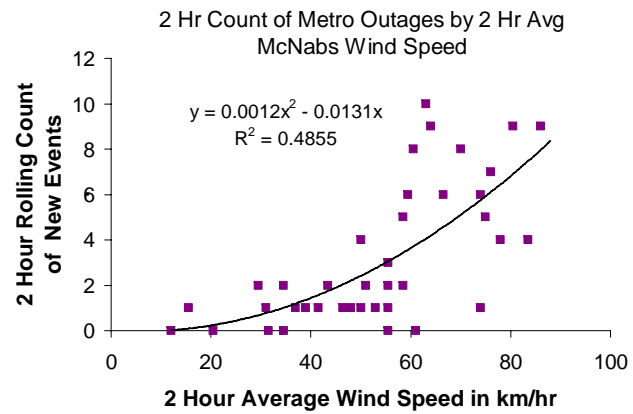
Weather

- ◆ Match up weather data to circuits
- ◆ Daily, weekly, or monthly

Reliability data

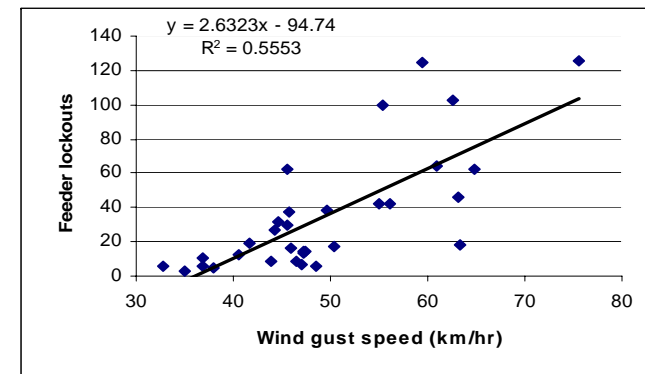
- ◆ Exclude non-weather events, often animals
- ◆ Assign unknown to lightning / animal based on season, time, and weather

Wind – Nova Scotia



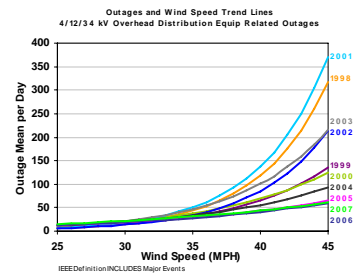
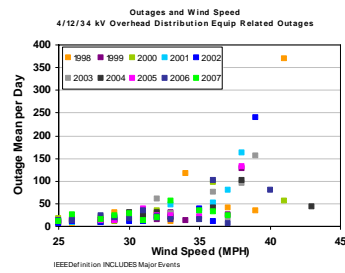
John Fraser, Nova Scotia Power

Wind - Australia



Mat Darveniza

Wind - Chicago

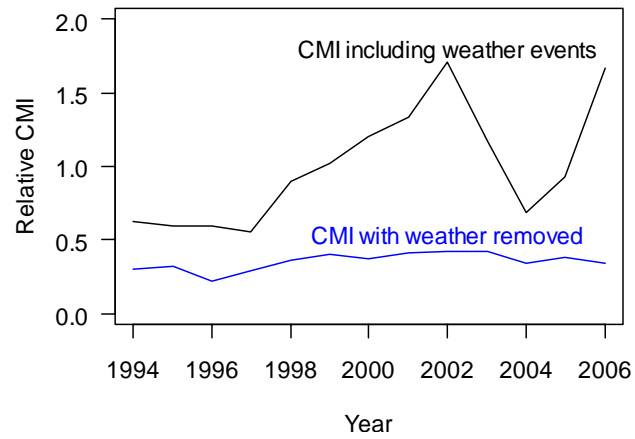


Jamie Ortega, ComEd

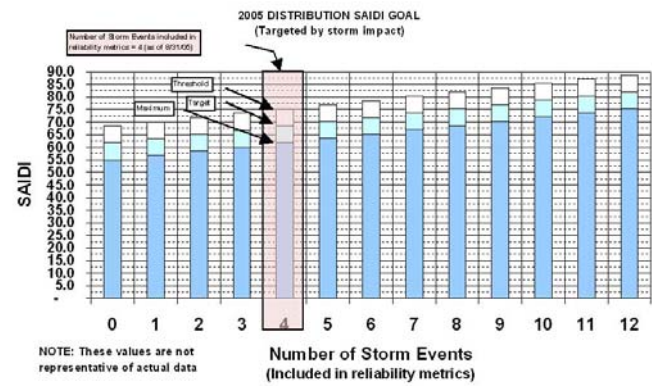
Normalizing Approaches

- Interruption Database Indicators of Weather
- Target adjustment
- Modified Beta method
- Statistical normalizing

Removing Weather Events



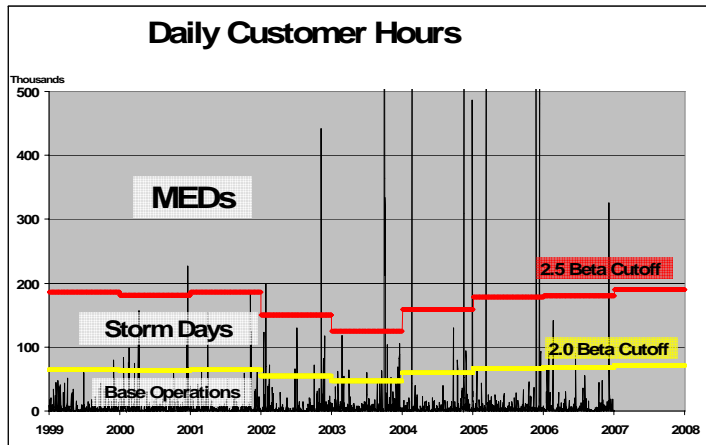
Target Adjustment



NOTE: These values are not representative of actual data

Mark Thatcher, Kansas City Power & Light

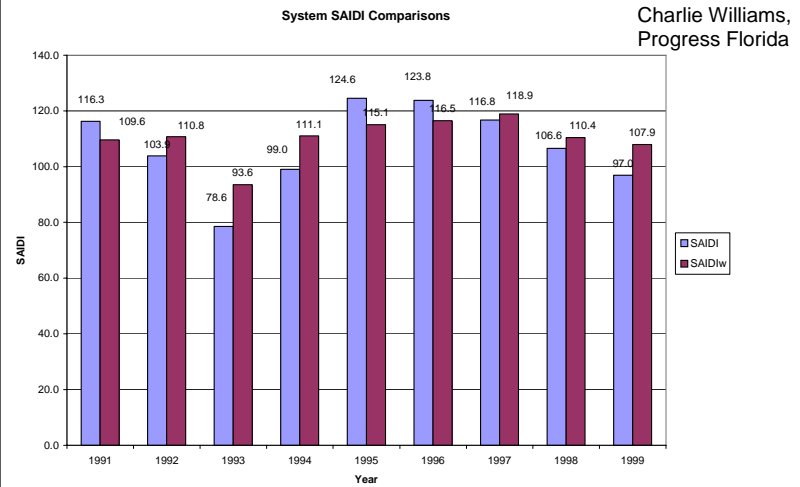
Modified Beta



John Fraser, Nova Scotia Power

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From Statistical Correlation to Normalization



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Weather Normalization Task Force

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