

# Logarithmic Resilience Risk Metrics That Address the Huge Variations in Blackout Cost

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Resilience risk metrics must address the customer cost of the largest blackouts of greatest impact. However, there are huge variations in blackout cost in observed distribution utility data that make it impractical to properly estimate the mean large blackout cost and the corresponding risk. These problems are caused by the heavy tail observed in the distribution of customer costs. To solve these problems, we propose resilience metrics that describe large blackout risk using the mean of the logarithm of the cost of large-cost blackouts, the slope index of the heavy tail, and the frequency of large-cost blackouts.