

# Prediction of Remaining Life of Power Transformers based on Left Truncated and Right Censored Lifetime Data

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# Background



- Electrical transmission is an important part of the US energy industry. There are about 150,000 high-voltage power transformers in service

# The problem and data

- An energy company wants to know:
  - The remaining life of the current healthy transformers
  - Prediction for cumulative number of failures
- The dataset has 710 observations with 62 failures
- The data are left truncation and right censored
- Explanatory variables: Manufacturer, Cooling and Insulation

# Outline

- Lifetime model and parameter estimation
- Stratification and regression analysis of the data
- The prediction interval procedure, calibration and prediction results