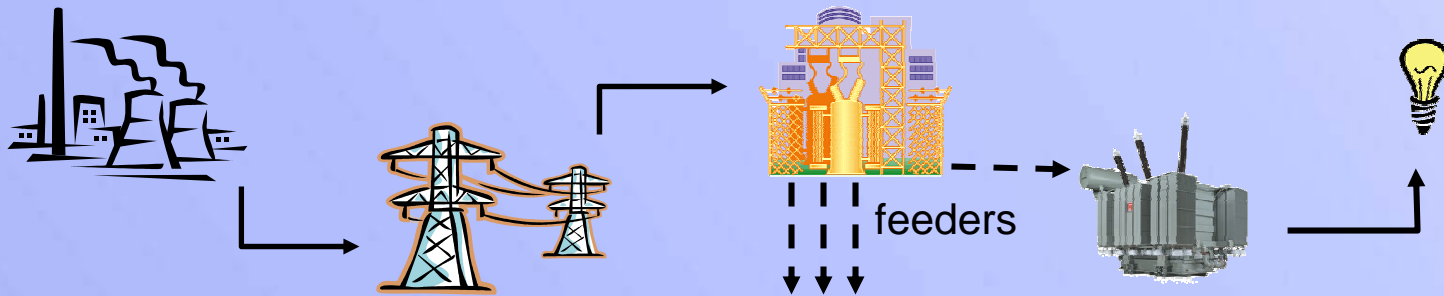


An Online Learning System for the Prediction of Electricity Distribution Feeder Failures

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- We use Machine Learning techniques to generate a failure-susceptibility ranking of electrical feeders.
- What are feeders and why are they important?



- Train models using supervised ML algorithms
- **Problem**
 - dynamic features – load, number of outages
 - seasonal changes in the system
- Need to come up with a training strategy

Approach

- An online learning system
 - Prediction using expert advice
 - Treat each model as an expert
 - Train models at different times and add to the ensemble
- Each expert has an associated weight
 - Reward/penalize experts with good/bad predictions
 - Weight is a measure of confidence in expert's prediction
- Predict using a weighted average of top-scoring experts