# Case Study:

Energy Demand Forecasting for Power Industry

# Overview:

Energy is vital for sustainable development of any nation – be it social, economic or environment. In the past decade energy consumption has increased exponentially globally. Energy management is crucial for the future economic prosperity and environmental security. Energy is linked to industrial production, agricultural output, health, access to water, population, education, quality of life, etc.

Electric load forecasting refers to forecasting electricity demand and energy a few minutes to a few decades ahead. As a fundamental business problem in the utility industry, load forecasting has extensive applications, such as power systems operations and planning, customer services, revenue management, energy trading, and so forth. Organizations in many sectors of the utility industry need load forecasts, such as the utilities themselves, regulatory commissions, retailers, and trading firms.

# Goal:

Goal of the case study is to come up with project implementation methodology with tested models which gives best forecasted demands for power Industry using the historical training data for building model logic and validating on the hold-out set.

The test data is not released to the participants during the competition; now, however, jury will use it to validate the model accuracy using MAPE. Test data structure is same as the historical data structure and participants are expected to provide scoring logic that will be tested on test dataset for scoring.

# Data:

The dataset can be divided roughly into two parts, based on the different purposes of usage: a training set for model identification and parameter estimation, and an evaluation set for calculating scores.

* Historical demand data at 30 minutes intervals for 2004, 2005 & 2006, at station level and overall.
* Holiday Indicator for 2004, 2005 and 2006.
* Weather data from 2004 to 2006

# Reference:

<https://www.sciencedirect.com/science/article/pii/S1110016811000330>

<http://www.teriin.org/upfiles/pub/papers/ft30.pdf>