**General Description**

Power generation is a complex process, and understanding and predicting power output is an important element in managing a plant and its connection to the power grid. The operators of a regional power grid create predictions of power demand based on historical information and environmental factors (e.g., temperature). They then compare the predictions against available resources (e.g., coal, natural gas, nuclear, solar, wind, hydro power plants). Power generation technologies such as solar and wind are highly dependent on environmental conditions, and all generation technologies are subject to planned and unplanned maintenance.

The power output of a peaker power plant varies depending on environmental conditions, so the business problem is predicting the power output of a peaker power plant as a function of the environmental conditions -- since this would enable the grid operator to make economic tradeoffs about the number of peaker plants to turn on (or whether to buy expensive power from another grid).

**Data set Information**

The dataset contains 9568 data points collected from a Combined Cycle Power Plant over 6 years (2006-2011), when the power plant was set to work with full load. Features consist of hourly average ambient variables Temperature (T), Ambient Pressure (AP), Relative Humidity (RH) and Exhaust Vacuum (V) to predict the net hourly electrical energy output (EP) of the plant.

A combined cycle power plant (CCPP) is composed of gas turbines (GT), steam turbines (ST) and heat recovery steam generators. In a CCPP, the electricity is generated by gas and steam turbines, which are combined in one cycle, and is transferred from one turbine to another. While the Vacuum is colected from and has effect on the Steam Turbine, he other three of the ambient variables effect the GT performance.

**Attribute Information:**

Features consist of hourly average ambient variables

- Temperature (T) in the range 1.81°C and 37.11°C,

- Ambient Pressure (AP) in the range 992.89-1033.30 milibar,

- Relative Humidity (RH) in the range 25.56% to 100.16%

- Exhaust Vacuum (V) in teh range 25.36-81.56 cm Hg

- Net hourly electrical energy output (EP) 420.26-495.76 MW

The averages are taken from various sensors located around the plant that record the ambient variables every second. The variables are given without normalization.