**Solar Power Prediction**

**Introduction:**

The contribution of power production by photovoltaic systems to the electricity supply is constantly increasing. An efficient use of the fluctuating solar power production will highly benefit from forecast information on the expected power production. This forecast information is necessary for the management of the electricity grids and for solar energy trading. According to a recent report from Greentech Media, the American energy storage market officially hit a milestone in the fourth quarter of 2017, deploying over 1000 cumulative megawatt-hours of storage between 2013 and 2017. The report also predicted that this number would double this year. As storage capacity increases and new technologies emerge, artificial intelligence is helping make usage more efficient. So, for proper design of your solar plus storage system, sound knowledge about irradiance-based power prediction model is critical. Our aim is to provide a review of the popular and practiced forecasting models and evaluate their performance to select the best appropriate model that meets our requirements.

**Data Sources:**

The weather data from July ’16 to December ’17, the inputs are obtained from NREL Measurements and Instrumentation Data Center

Hourly power output (actual) values for the same period is obtained from *pvoutput.org*.

**Data Description:**

Date

GHI – Global Horizontal Irradiance

DNI – Direct Normal Irradiance

DHI – Diffuse Horizontal Irradiance

Air Temperature

Wind Speed

Average relative humidity

Average Station Pressure

Average Zenith Angle

Average Azimuth Angles

Power Output