Model Metrics:  
Renewable Energy and Weather Conditions

**Introduction**

This document provides a summary of the features, parameters, hyperparameters, and performance metrics of the model selected.

**Model Information**

- Model Name: Random Forest Regressor

**Model Features**

The model uses the following features:

- GHI (Global Horizontal Irradiance)

- Temperature

- Pressure

- Humidity

- Wind Speed

- Rainfall

- Snowfall

- Cloud Coverage

- Sunlight Availability

- Day Length

- Ratio of Sunlight Time to Day Length

- Weather Type

- Day of the Year (sin and cos components)

- Year (sin and cos components)

**Model Parameters**

The following default parameters were used:

- n\_estimators: 100

- random\_state: 42

**Hyperparameters**

No hypermeters used

**Performance Metrics**

The model's performance was assessed using the following metrics:

- Mean Absolute Error (MAE)

- Mean Squared Error (MSE)

- R-squared (R2) score

**Performance Results**

- MAE: 104.77

- MSE: 68,848.37

- R-squared (R2): 0.94