

This is a fully connected transformer-based neural network designed to predict daily energy demand based on various input such as temperature, holiday, energy generation etc. Basically, this model is a **Transformer Encoder-based Regression Model**. The model has 3 key components:

Input Layer:

Input features (e.g., temperature, day) go through a linear layer, which transforms them into a high-dimensional representation that the transformer can effectively process

Transformer Encoder Layer:

- The core of the model has multiple transformer encoder layers.
- Each encoder layer uses multi-head self-attention to analyze the relationship between input features.
- It captures dependencies like how temperature and holiday together affect energy demand on different days.
- The positional encoding mechanism helps the model understand the sequence of inputs in time-series forecasting.
- We also used multiple trial to find best hyper parameters

Output Layer:

The final linear layer converts the learned representation of the transformer into a single numerical output, which represents the predicted power demand (MW).