

# Submission Summary

## Net Load Forecasting using Probabilistic Transformer-based Deep Learning Methods

### UTA Energy AI Team

- The net load of an electric grid depend on many stochastic factors including weather conditions (temperature, precipitation, wind, solar radiation, etc.), market conditions, and dynamic customer behaviors.
- In this submission, we will develop a new probabilistic deep learning model to achieve long-sequence multivariate time series modeling and forecasting.
- The structure of the deep learning model will be based on the transformer model, which has shown successful applications for sequence-to- sequence data modeling in natural language processing and modeling.
- We adopted the self-attention design as the backbone of the deep learning model structure to encode multivariate time series data and integrate it with statistical machine learning techniques to generate probabilistic forecasting with uncertainty quantification.
- The new probabilistic deep learning model will be developed to perform the daily day-ahead probabilistic net load forecasts at an hourly resolution using the provided challenge data.