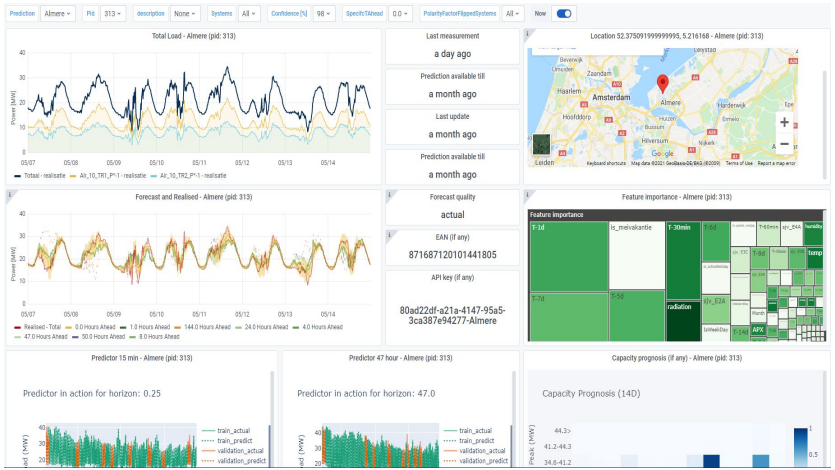
OpenSTEF - Open Short Term Energy Forecasting

lfenergy.org/projects/openstef/

OpenSTEF is a fully automated, open-source software stack that predicts future load on the electricity grid using machine learning. It works with energy consumption, renewable generation, or a combination of both. OpenSTEF validates input data, uses external predictors such as weather and market prices, trains machine learning models, and provides a forecast via API and graphical user interface. The stack is organized in a microservice architecture, and optimized for cloud-deployment. OpenSTEF is part of the Linux Foundation Energy.



Screenshot of operational dashboard at a Dutch DSO

High level methodology

OpenSTEF consists of automated machine learning pipelines to train any sklearn-compatible ML model, generate probabilistic forecasts and manage the model lifecycle. Probabilities are generated by evaluating the model performance over the validation set (computationally cheap) or using quantile regression (computationally expensive).

Top Use Cases

- Forecasting load at the DSO/TSO interface
- Forecasting load for the DSO to perform congestion management
- Forecasting load on secondary substations or individual customers to facilitate smart-grid applications

Link to Architectural Overview Diagram

https://openstef.github.io/openstef/concepts.html

LF ENERGY

LF ENERGY OpenSTEF

The Power of Together