

OpenSTEF Roadmap

Roadmap 2024

Vision

Our open-source initiative aims to develop a cutting-edge machine learning pipelines for short-term energy load forecasting on the grid. These pipelines are designed for seamless adoption, boasting exceptional quality and harnessing built-in expert knowledge. The aim is to make OpenSTEF the industry standard for short term energy forecasting.

Fostering an active community, our project encourages collaborative efforts, fostering continuous improvement of the code base through contributions from multiple stakeholders.

Unique selling points

- Easy adoptability
 - Automated pipelines make is very easy to train a model and make a forecast
 - The example notebooks provide an easy way to get familiar with the model
- Simple interface
 - Extendable
 - Explainable
- Proven/benchmarked high forecasting quality
 - Easily benchmarked by backtest
 - Implemented at companies such as Alliander and RTE
- Build-in expert knowledge on energy systems
 - Close connection to academic knowledge (latest scientific innovation)
 - Feature engineering
 - Energy splitting
- Fully open-source
 - Community of experts
- Flexibility to be able to implement in any enterprise environment
- Scalability
- Data standard on how to handle forecast (standardization)

Plans community

Alliander - KTP team

- Improve forecast quality
- Dagster
 - MLOPs architecture
 - May influence the reference implementation
 - Add maybe second reference implementation
 - Larger scale implementation
 - Add to description
- Improved DAZLs model (Q1)
- Update example notebooks

Firan

- Improve forecasting quality of peaks, with a very short time horizon

RTE

- Predict wind power on OpenSTEF.
 - Predict every hour for 72 hours.
 - 2500 windfarms.
- Implement new machine learning model

RTE-i

- Create a complete POC for demonstration purposes (Q1/Q2)
- Present a webinar on OpenSTEF (22nd of March, Q1)

Sigholm

- Deploy OpenSTEF on Sigholm cloud environment
- If requirements are met, switch to OpenSTEF as main forecasting tool.
- Demo to Sigholm customers
- Integrate with other Sigholm products.

Shell

- Implementation OpenSTEF-dbc realtime

Planned milestones

Year	Q	Milestone	Company	Kind
2024	1	Promote OpenSTEF at FOSDEM	Alliander	Outreach
2024	1	OpenSTEF workshop	Alliander	Outreach
2024	1	Present webinar on OpenSTEF	RTE-i	Outreach
2024	1/2	Complete POC for demonstration purposes	RTE-i	New
2024	1/2	Improve forecasting quality	Alliander	Improvement
2024	2	Provide benchmark of OpenSTEF on relevant usecase compared to other forecasting providers		New
2024	2	Promote OpenSTEF at CIRED (incl. Methodology paper)	Alliander	Outreach
2024	3	LF energy summit		Outreach

Previous roadmaps

Input Alliander:

Forecasting topics at Alliander 2022:

- Scale up 'Contingencies'; locations with active capacity management
- T-prognoses customers; Including those in our load/generation forecasts
- Forecasting load at non-measured secondary substations
- Forecasting Reactive power (with few measurements)

Milestones related directly to OpenSTEF: (version 2022-02-21):

Year	Q	Milestone	Kind
2022	1	Finish OpenSTEF LFE Intake	Outreach
2022	1	Remove Openstef-dbc from Openstef	Improvement
2022	2	Forecasting API - together with SOGNO FastAPI wrapper around OpenSTEF	New
2022	2/3	Promote OpenSTEF @ LFE <ul style="list-style-type: none"> • project interview video • host webinar • promote at conference blocked URL 	Outreach
2022	3	Backtest / Predictability Analyses	New
2022	3	Ensemble forecasts - Automated optimized combination of independent forecasts / forecasting algorithms	Improvement
...			

Input RTE:

Short Term Forecasts

RoadMap 2022-2024



Wind

Balancing specific forecasts (ID to D+13) using multiple weather forecasts providers and machine learning algorithms

Spatio-temporal very short term local forecasts (H to H+6)

Dynamical multi-providers short term local forecasts



Solar

Satellite images local-based nowcasting

Extrapolated satellite images based (Cloud Motion Vector) very short term local forecasts (H to H+6)

Short term forecast model refactoring (ML algorithm and weather products for ID to D+2)



Load

Direct Net load forecasting approach



Tools

OpenSTEF standardisation

Operational forecasting modules OpenSTEF migration

Choosing a database technology