

# ENFLATE PROJECT NEWSLETTER

## GOALS & TARGETS

The ENFLATE project aims at the flexibilization of Energy markets from TSOs down to end-consumers, using new and smart technologies to provide clean and easy-to-use solutions for the decarbonisation of the electricity market. The goals are aligned with the European Commission's policy framework (i.e., Clean Energy Package, FiT 55), seeking to decarbonise the energy system, encouraging the electrification of heat and transport, as well as the connection of more clean but intermittent generation.

## NEW DEMONSTRATOR VIDEO

In **Geneva (Switzerland)** 12 fully electric busses are running. These are charged at the stopping stations within 20 seconds and are optimized for large capacity and range while using 100 % renewable energies. AI forecasting is used to minimize energy consumption. Additionally, three fully autonomous busses are running with door-to-door service while keeping the ecological and environmental goals.

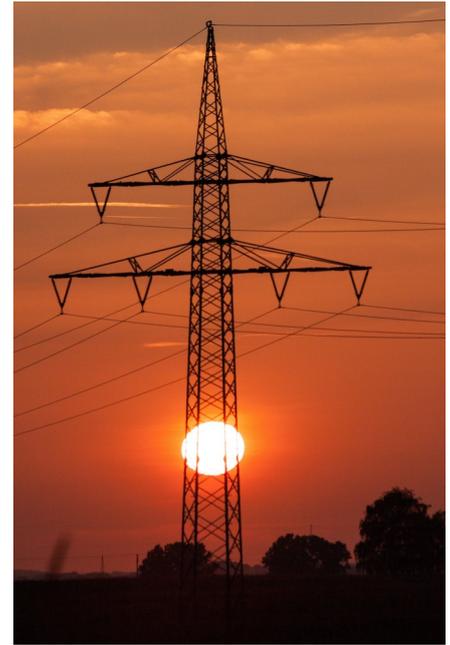
The project video can be seen at <https://www.youtube.com/watch?v=BvnDNuu7ysM> or by scanning the QR-Code



## AI FORECASTING—APPLICATIONS FOR ENFLATE

AI forecasting is used in several ways to improve grid stability and health to end-consumers.

Indoor air quality is a significant concern for public health, with indoor air pollution contributing to millions of deaths annually. A research group from CERTH proposed a machine learning based approach to forecast CO<sub>2</sub> levels indoors, a key indicator of indoor air quality. By utilizing timeseries forecasting and artificial intelligence techniques, the study aimed to predict CO<sub>2</sub> concentrations in a short term horizon of five minutes and enhances indoor air quality. The results demonstrated the potential of machine learning-based approaches to accurately predict CO<sub>2</sub> levels, which can be utilized to optimize the use of safer heating and air-conditioning.



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## PROJECT DETAILS

**Timeframe:** September 2022 - August 2026

**Budget:** €14,314,162.00

**HORIZON EUROPE—  
Innovative Actions:**  
€ 7,686,305.00



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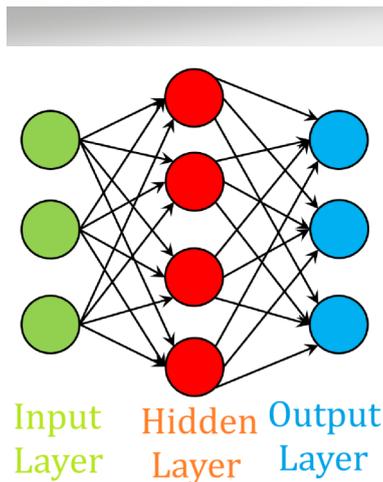
<https://www.linkedin.com/showcase/enflate/>



<https://twitter.com/enflateproject>



<https://www.youtube.com/enflate5366>



### AI forecasting

Artificial Intelligence forecasting (AI-forecasting) is a promising tool to enhance the quality of forecasting by using datasets that are either too complex to be analyzed by traditional forecasting tools or to reduce the sources and resources needed for reliable forecasts.

Especially when it comes to unstructured, non-linear or higher dimensional data traditional methods of forecasting have problems predicting reliable and safe solutions

Scalability and human biases are also less prevalent in AI-forecasting due to their dependence only on data.

Once trained, these characteristics make AI forecasting a promising tool for scientific and technical applications with large and complex datasets ranging from automatic language translation, weather systems, image labeling, consumer markets, and even earthquakes.

In the ENFLATE project AI-forecasting has been used for predictions on power grid stability, CO<sub>2</sub> for obtaining better indoor air quality and energy forecasts using earth observation open data.

In another research paper CERTH used Earth Observation technology, involving the collection and analysis of data from satellites, as a cost-effective method for achieving precise energy monitoring. Commercial satellites offered high-resolution data, a valuable resource for climate change and energy research. The study proposed the integration of EO meteorological data with on-site sensors to monitor building energy consumption. Furthermore, the research proposed the use of explainable machine learning techniques to promote sustainability practices. As a cost-saving measure, they recommend substituting expensive outdoor sensors with Earth Observation data, thus reducing corporate expenditures and increasing the accuracy of the measurements.

## UPCOMING WEBINARS

Two demonstrators organized webinars that will take place in autumn 2024:

**St. Gallen (Switzerland):** DERs like boilers and charging stations, coupled with existing smart meters, form the focus. Additional real-time metering and control hardware complement the existing infrastructure, providing energy measurement and control signals.

The partners of demo #2 in Eastern Switzerland are organizing a 60min webinar on October 15th, starting 10:00 CEST. The Swiss TSO (Swissgrid), will share valuable insights on the needs and future role of flexibility. EPEX SPOT will then present how local flexibility markets are implemented in practice. Learnings from EPEX's ongoing activities will be illustrated using examples from all across Europe. The webinar will conclude by diving into the ENFLATE demonstrator in Eastern Switzerland where a living lab with a few hundred households is currently being developed. Aim is to showcase the use of grid friendly flexibility where a centralized flexibility coordination platform allows a variety of use cases and different market actors across the flexibility ecosystem.

Participate via [https://hslu.zoom.us/webinar/register/WN\\_5uWGiv-BTE-E6SPTjBYIFg](https://hslu.zoom.us/webinar/register/WN_5uWGiv-BTE-E6SPTjBYIFg) or scan the QR-Code.



**Kungsbacka (Sweden):** The site will provide real-time measurement (smart meters), controller integration, and smart appliances and will integrate various technologies, including heat network, solar PV, battery energy storage, and smart appliances. Notably, EKSTA, that the name of Ekonomi (Economy), Kvalitet (Quality), Service, Trivsel (Well-being) and Ansvar (Responsibility) is Kungsbacka municipality's housing company will engage its 3,000 apartments in the demo.

This webinar, held on the 30th of September at 13:00 CEST, explains more about the ENFLATE demo site in a residential area in Kungsbacka. Here, the Swedish partners—IVL Swedish Environmental Research Institute, Eksta, and Noda Intelligent Systems—are developing an AI-driven model to analyse and optimise the local energy system using various energy sources and actively engaging the residents. Initial results, to be presented at the webinar, show good potential for cost savings and reducing the impact of climate change.



Participate via <https://msteams.link/8CXA> or scan the QR-Code.



### 3rd Plenary Meeting in Athens

On May 15 and 16 the meeting of the ENFLATE project took place in Athens. The timeplan and key performance indicators (KPIs) of all work packages were presented and discussed. The possibility for the refinement of existing products was also conducted in a participative workshop, creating mindmaps to target the main problems of the stakeholders with innovative approaches.

### ENFLATE @ EUSEW 2024 in Brussels

This year's European Sustainable Energy Week took place from June 11–13, bringing together more than 2,000 attendees for talks and exhibits. On behalf of the ENFLATE project Ms. Katerina Drivakou (UBITECH ENERGY) participated in the first panel discussion "Unlocking local energy flexibility potential: are customers ready to embrace innovation?".



### ENFLATE was presented at the Grid Service Market Symposium (GSM) in Lucerne

The 7th GSM-Symposium aims to outline recent developments in the European grid service markets, to highlight advancements and challenges in international cooperation and to reflect the technological progress. In addition, it reports on experiences and success stories, which support a rating of the performance, and future potential of new sustainable technologies. ([www.gridservicemarket.com](http://www.gridservicemarket.com))

NOVA (Greece) - Coordinator

UBITECH ENERGY (Belgium)

ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS (Greece)

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### Contact us:

[info@enflateproject.com](mailto:info@enflateproject.com)