

SUCCESS CASE 45.2025

VR training system

A FLEXIBLE SYSTEM FOR INCREASING THE COMPETENCE OF TECHNICAL SERVICE EMPLOYEES USING VIRTUAL REALITY TECHNIQUES



THE CHALLENGE

The main objective of the project was to build a **flexible, innovative virtual reality (VR) system for conducting training of technical service employees**, containing interactive virtual training scenarios for connection activities and live-line working technology for selected Main Supply Points (HV/MV power stations), MV/LV power stations and the live-line work training centre in Łagów.

The Polish DSO **Enea Operator** implemented a research and development project in cooperation with the **Poznań University of Economics** and the **Poznań University of Technology**. The implementation of the activity was possible thanks to the **support of European Funds** under the Smart Growth program through the **National Centre for Research and Development**.



VR simulations (left and right) and training activities using the VR system (centre).

MAIN ACHIEVEMENTS

The project in numbers:

- 26 facilities - 14 HV/MV power stations, 10 MV/LV power stations, Łagów Training Center and Unattended Meter Warehouse.
- 5 training scenarios with free movement around the power station, exercises, lessons and exams.

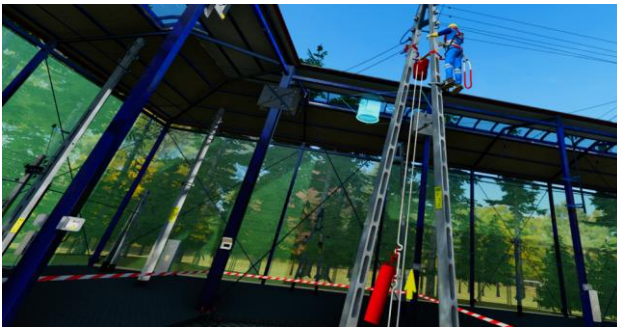
- 5 live work technology training scenarios.
- 1 training scenario in English.
- Tutorials, basic and advanced.

The system is regularly updated with new objects and training scenarios.

KEY SUCCESS FACTORS

The significant benefits brought by the project include:

- The possibility of training electricians using new technologies with **Enea Operator having the most extensive VR-based training system in Europe.**
- The increase in the training potential of the centre in Łagów by using training computers.
- The use of a **mobile training station (VR Bus)** to promote the ENEA Group at conferences, industry events, sponsoring schools and universities.



VR simulations.

An important element of the VR training process is the use of a special **tutorial**. This allows the instructor to **assess the skill level of the training participant** and select the appropriate training scenario so that the training is as effective as possible.

The effective verification of training results is performed thanks to:

- A detailed retrospective of the scenario.
- The recording of training progress in the system database.

After completing each training scenario in the Enea Operator VR system, the instructor and the training participant have the opportunity to **recreate the scenario**, identify which step took the most time and which training activities require additional attention. Each of the courses is saved in the database, allowing the participant to return to the completed training at any time and place. In addition, after completing the training process, participants fill in a **dedicated survey to assess the level of difficulty of the training**, what parts of the training process could be improved and the preparation and support received from the instructor.

The benefits brought by the training and its effects are evidenced by the decisions of the Board of Enea Operator and all directors of the Energy Distribution Divisions. In fact, the company decided to allocate an additional day for employees for training with the inclusion of virtual reality technology, extending the scope of traditional training. This is a result of the **positive response of the employees of Enea Operator** to the system and dedicated initiatives.



Enea Operator's mobile training station (VR Bus).

INNOVATION AND CREATIVITY

The **Enea Operator VR training system** is the most innovative training system in Europe that supports the power industry and faster preparation for network electrician and energy emergency worker professions. The system is based on a dedicated training path: from tutorial, through lesson and exercise modes, to examination mode. Additionally, the system foresees the possibility of using

the exploration mode, in which a person having contact with a power station for the first time has the opportunity to get to know the switching equipment or control room equipment.

An important element of the training is the **effective evaluation of the training course** and the possibility of paying additional attention to practical training aspects that require so.

Another unique element of the training system is the **VR Bus**, which allows for reaching every energy post of the company and conducting training in every small town, making this new technology open to everyone. Moreover, the VR Bus supports **employer promotion**, presenting the DSO as an employer open to new technological innovation. To this end, the VR Bus has reached technical and industry schools at energy fairs, as well as educational fairs, delivering information about power engineering.

The Enea Operator VR system was recognised as Innovation of the Year in Poland, and was twice in the finals of the VR and extended reality (XR) competition (organised by AIXR) as the best educational solution. Enea Operator was the only non-IT company nominated for the award. In 2025, the system further received the **award of the Minister of Science and Higher Education of Poland** in the implementation activity category, which was received by people involved in the project from **Enea Operator, Poznań University of Technology and Poznań University of Economics**.