Installation of one Individual Heat Substation and indoor automation systems at NVK School

Project background

Name of applicant	Volochysk City Council
Project info/Project name	Installation of one Individual Heat Substation and indoor automation systems at NVK School
Contractor	Esko Ltava LLC
Project duration	September 2019–November 2021
Contract value	EUR 75,500

Project summary

1 Project summary

The project included the installation of an individual heat substation (IHS) and indoor automation systems, replacement of radiators and upgrading of the Domestic Hot Water (DHW) system at the previously thermally modernised NVK School in Volochysk, Khmelnytskyy region, Ukraine. The main objectives of the project were to increase energy savings and demonstrate the synergies between an IHS and the thermal modernisation of buildings, showing that IHS installation is an integral part of such modernisations.

2 Project conclusions

The project covered the installation of a modern IHS (produced by Gebwell) and suitable drainage system, assembly of 221 new radiators (by Purmo) with individual thermostats, laying of 600 metres of heating networks and 20 metres of water pipeline, installation of heating and ventilation for the basement of the IHS, installation of three hot water buffer tanks and electrical, balancing and other work. Maintenance training was also carried out for staff at the school.

Following project completion, the average temperature of the premises increased from 18 C° to 20 C°. Regulating the temperature was also found to be easy, since the IHS can be controlled remotely via the Internet at any time.

Long term, the project has enabled energy optimisation and savings and thus reduced heating costs for the school.

3 Impact on Human Rights and the project's Sustainable Development Goals (SDGs)

The project positively impacts human rights by supporting improvements in infrastructure and living standards and ensuring environmental sustainability and energy security, providing consumers, including vulnerable groups, with access to affordable, reliable and modern energy services.

The project covers the following SDGs:

4 Project deviations

No project deviations were identified. Some delays in the project implementation schedule occurred due to customs procedures.

5 Project lessons learnt

Lessons learnt

Overall, the installation of an IHS is a necessary step when introducing energy-efficiency measures for a large variety of public and multi-storey buildings. However, it is very important to carry out thermal modernisation of buildings to prevent heat loss and thus achieve savings. Volochysk school had previously been thermally modernised, which allowed the necessary synergies to be achieved; besides overall optimization of heat consumption, the temperature in the classrooms is now uniform and does not drop significantly even when the coolant stops due to a breakthrough.

The project has also demonstrated that, besides an IHS, it is very important to install an efficient heating network that allows radiator thermostats to be set individually to achieve a uniform temperature in classrooms.

Benefits of the project

Real measured energy savings can be obtained after measurements have been taken over a full year (heating period). Savings are either direct savings for the school as a result of the new equipment or savings in heat production and delivery due to reduced heat consumption.

The project implementation is estimated to achieve savings of about 15% of the total heat consumption.

The project resulted in a decrease in CO2 emissions of approximately 37 tCO_2.

Electricity consumption for heat distribution will decrease by approximately 3.5 MWh.

The average indoor temperature was balanced and has increased from 18 C° to 20 C°. This increases energy consumption for heating spaces by 10% but enables better indoor air quality, hence providing a better learning environment and reducing sickness.

Effectiveness of the project

The project was implemented successfully and the project deliverables met targets as well as FUTF objectives to promote cooperation between Finland and Ukraine. The project results are replicable, as every Ukrainian city has schools in which heating systems need to be modernised; thus the technological solutions used in this project could be applied to any school or kindergarten in Ukraine.