Report on the Results of the Pilot Project

Hybrid solar power plant,
Monastyryska School I–III Levels,
Ternopil oblast
'School Under the Sun' programme
15 May 2026

Foreword

The first hybrid solar power plant of the 'School Under the Sun' programme has been operating on the roof of Monastyryska School since its official launch on 17 November 2025. This report presents verified figures from the DEYE Cloud platform for the period January to May 2026.

The report covers five months of operation, which coincided with one of the most demanding heating seasons of the war period. This means that the plant's autonomous operation was tested not against design assumptions, but under the real conditions of regular grid outages.

Site and Installed System

The pilot site is Monastyryska School I–III Levels in Chortkiv district of Ternopil oblast, a general secondary education institution with 638 pupils, whose founding authority is Monastyryska City Council. During the 2025/2026 heating season the school operated under conditions of regular grid outages.

A hybrid solar power plant combining three elements, generation, conversion and storage, was mounted on the school roof. It is precisely this combination that distinguishes a hybrid plant from an ordinary solar panel: a panel without a battery powers the school only while the sun shines and while the grid is up, whereas the hybrid configuration keeps the institution running during outages. The inverter switches the supply between grid, modules and battery in real time, without human intervention.

Parameter	Value
Photovoltaic modules	Leapton Solar LP182M60-MH-460W, 112 modules × 460 W, Tier 1
Total installed capacity	51.5 kW
Hybrid inverter	Deye SUN-50K, three-phase, 50 kW
Battery storage	Deye SE-G5.1Pro-B, 4 modules, $LiFePO_4$
Total storage capacity	20.5 kWh
Battery cycle life	over 3,000 charge-discharge cycles
Online monitoring	integrated, real-time data
Configuration	hybrid, configured for self-consumption, zero grid export
Date of official launch	17 November 2025

What the Meter Showed Over Five Months

Over the period January to mid-May 2026, the school's own panels generated 8.08 MWh of electricity. The breakdown of this energy by purpose is set out below; all values are taken directly from DEYE Cloud exports.

Indicator	Value	Basis
Generated by the school's own panels	8.08 MWh	actual, DEYE Cloud
Consumed directly from the sun, with no purchase from the grid	6.7 MWh	actual, DEYE Cloud
Drawn from the battery during outages and in the evening	0.96 MWh	actual, DEYE Cloud
Stored in the battery as reserve	1.04	actual, DEYE

	MWh	Cloud

Across the entire monitoring period, the school did not once halt its teaching process for lack of electricity. The battery fulfilled its core purpose during the 2025/2026 outage season, holding up classrooms, lighting and equipment through blackouts of 4 to 6 hours at a time.

Seasonal Generation Dynamics

The five-month dataset reflects the pronounced seasonality characteristic of solar generation at our latitudes: output is at its lowest in December and January and at its highest from April through September. The share of the school's consumption covered by its own generation rose in step with the lengthening daylight.

Period	**Coverage of consumption by own generation**
January 2026	approximately 4 per cent
February 2026	21 per cent
March 2026	57 per cent
April 2026	50 per cent
May 2026 (1–15)	72 per cent

In January, when daylight is shortest and snow lay on the module array, generation fell to its seasonal floor, and the institution's operation relied mainly on the grid, with the battery drawn down primarily during outages. This is the expected behaviour of a hybrid system in deep winter. From February onwards the share of own generation rose steadily, and the trajectory by mid-May, with the peak months of June, July and August still to come, confirms the expected figure for the solar season.

It is precisely here that the logic of the hybrid model becomes clear. The peak of solar generation falls within the solar season, that is, the period when the grid suffers most from the scheduled summer maintenance of nuclear generation combined with the aftermath of winter strikes on infrastructure. In these months the plant reaches 70–75 per cent coverage from its own generation,

meaning the school receives three quarters of its electricity from the sun precisely when the grid is least reliable.

A hybrid plant is not a 'perpetual motion machine' that takes the school off the grid entirely. It is an engineering tool whose output grows alongside the available sunlight. In winter it does not disappear, but changes function: the primary role becomes not generation but reserve for the time of outages.

Environmental and Financial Effect

The figures for the annual effect are presented as projected (calculated): they are based on the system parameters and on the seasonal profile recorded over the first five months, taking account of the strong concentration of generation into the peak summer months. Final verification will take place against the results of the first full year of operation.

Indicator	**Value**
Projected annual generation	37,000–40,000 kWh (calculated)
Expected annual savings on electricity costs	approximately UAH 185,000 (calculated at the tariff for budget institutions)
Expected CO_2 reduction	approximately 15 tonnes per year (calculated)
Expected CO_2 reduction over the service life (25 years)	approximately 375 tonnes (calculated)
Per-kW CO_2 reduction basis	291 kg CO_2 per kW per year

The figure of 291 kg of avoided CO_2 for each installed kilowatt of capacity per year was obtained at a real site, not taken from industry tables. It is calculated as the ratio of the verified annual emissions avoided to the installed capacity of the plant, and serves as an empirical reference point for programme-level projections.

The Importance of the Pilot for Scaling Up

The Monastyryska plant answered the principal question of whether the model of solar power plants on school rooftops works

technically and financially. The answer rests on meter readings, open for verification.

It is on this data that the scaling programme to 15 general secondary education institutions across six oblasts of Ukraine is built. The expected aggregate result of the programme: total installed capacity of 600–650 kW, annual generation of 450–520 MWh, and a CO_2 reduction of 175–190 tonnes per year. The direct beneficiaries will be 4,500 to 7,500 pupils and 600 to 750 teachers, who will gain not only an energy-independent school but also a living curriculum in renewable energy based on real generation data from their own plant.

Each school with a hybrid plant combines the functions of four facilities at once: an educational institution that preserves continuity of learning; a community centre and point of resilience for its community; a demonstration model of municipal renewable energy; and a platform for climate education with real data.

Transparency and Evidence Base

The pilot's data is recorded continuously by the integrated online monitoring of the Deye SUN-50K inverter and transmitted to DEYE Cloud, the manufacturer's operating platform, accessible to the Foundation as the system owner. The platform provides real-time data on generation, consumption, battery state of charge and inverter mode, as well as historical aggregates at daily, monthly and yearly resolution.

The following materials are held by the Foundation and are available for transmittal to partners and donors on request: the energy audit report and design documentation; procurement records and supplier specifications for the equipment; grid connection documentation; photographic record of the installation; monthly exports of generation, consumption and storage data from DEYE Cloud from January 2026 onwards; daily generation and consumption curves for selected reference dates; and the event log of grid outages with start time, end time and battery state of charge.

The data is open. The sun gives its rays. The equipment generates electricity. The model works. The meter counts.

Contacts

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