Report on the analysis of projects for solar power generation implemented by the NGO Ecoclub

Ecoclub INTENCO

2026

The document presents the results of the analysis of solar power plant projects, conclusions regarding their implementation, and recommendations for improving the effectiveness of future projects.

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INTRODUCTION

This report aims to conduct a comprehensive analysis of the performance of the solar power plants built by the NGO Ecoclub and to develop recommendations for implementing similar projects.

The study analyzed the operation of eighty-six solar power plants installed at critical infrastructure facilities (primarily water supply and wastewater treatment facilities as well as healthcare institutions).

When conducting the analysis, the data from the ASEM PV system was used. ASEM PV is a system for monitoring the operation of solar power plants built in Ukraine, and it is based on the ASEM energy monitoring system.

1 THE PURPOSE OF SOLAR POWER PLANTS INSTALLATION

- Reduction in the use of fossil fuels for providing energy to critical infrastructure facilities and public buildings, and, as a result, lower CO_2 emissions.

- Improved reliability of the power supply to critical infrastructure facilities amid damage to Ukraine's energy infrastructure caused by the Russian Federation armed aggression.

- Reduction of energy supply costs for critical infrastructure facilities and public buildings.

- Demonstration of the potential of solar power plants to facilitate further adoption of such solutions.

- Gaining experience in implementing distributed generation systems based on solar power plants.

2 ANALYSIS OF PROJECT IMPLEMENTATION APPROACHES

2.1 Selection of sites for implementation

This report analyzes **86 SOLAR POWER PLANTS** (SPPs), specifically:

55 sites — HEALTHCARE FACILITIES

21 sites — WATER SUPPLY AND WASTEWATER TREATMENT FACILITIES

10 sites — OTHER FACILITIES

The **GRID CONNECTION** breakdown of the SPPs is as follows:

40 sites — GRID-CONNECTED

37 sites — HYBRID

9 sites — COMBINED (combining hybrid and grid-connected systems)

GRID-CONNECTED SPPs — is a plant that generates electricity using solar energy and operates only when connected to the external power grid. In the event of a power outage, such a plant automatically shuts down.

HYBRID SPPs — is the one equipped with storage batteries that allow it to store electricity and provide electricity to the facility even if the external power grid is disconnected.

4.38 MW — THE TOTAL INSTALLED CAPACITY OF THE PHOTOVOLTAIC MODULES

4.11 MW — THE TOTAL CAPACITY OF THE INVERTERS

2.56 MWh — THE TOTAL STORAGE CAPACITY

Fig. 1. DYNAMICS OF SPPs INSTALLATION (2020–2025)

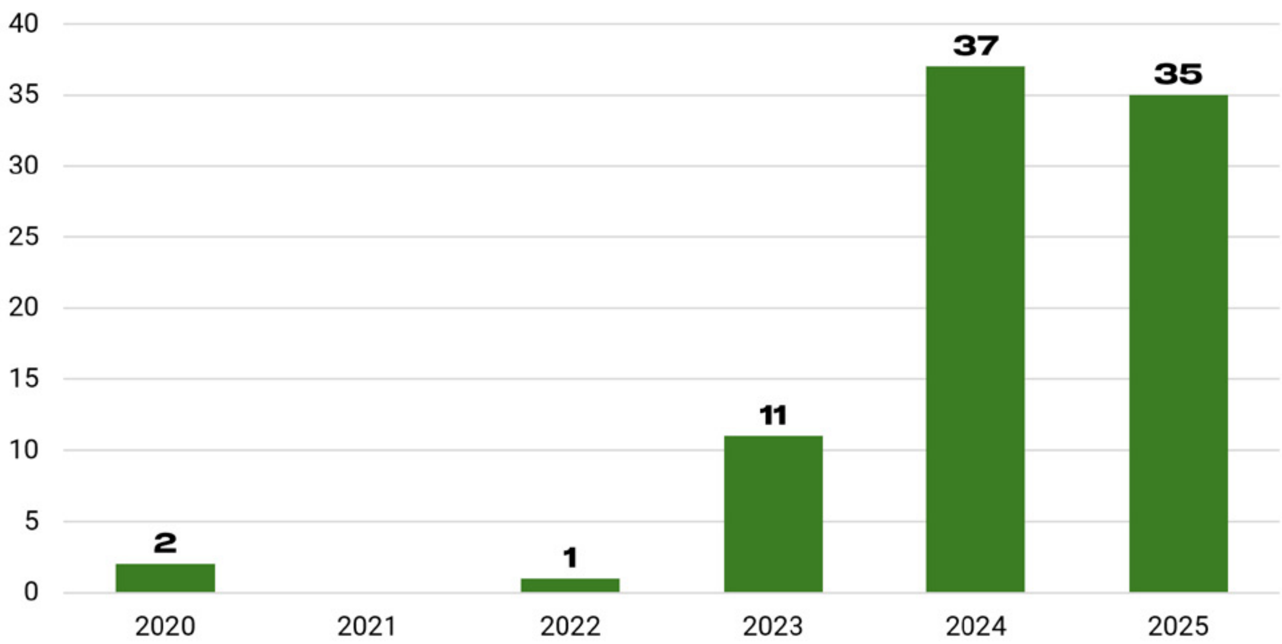
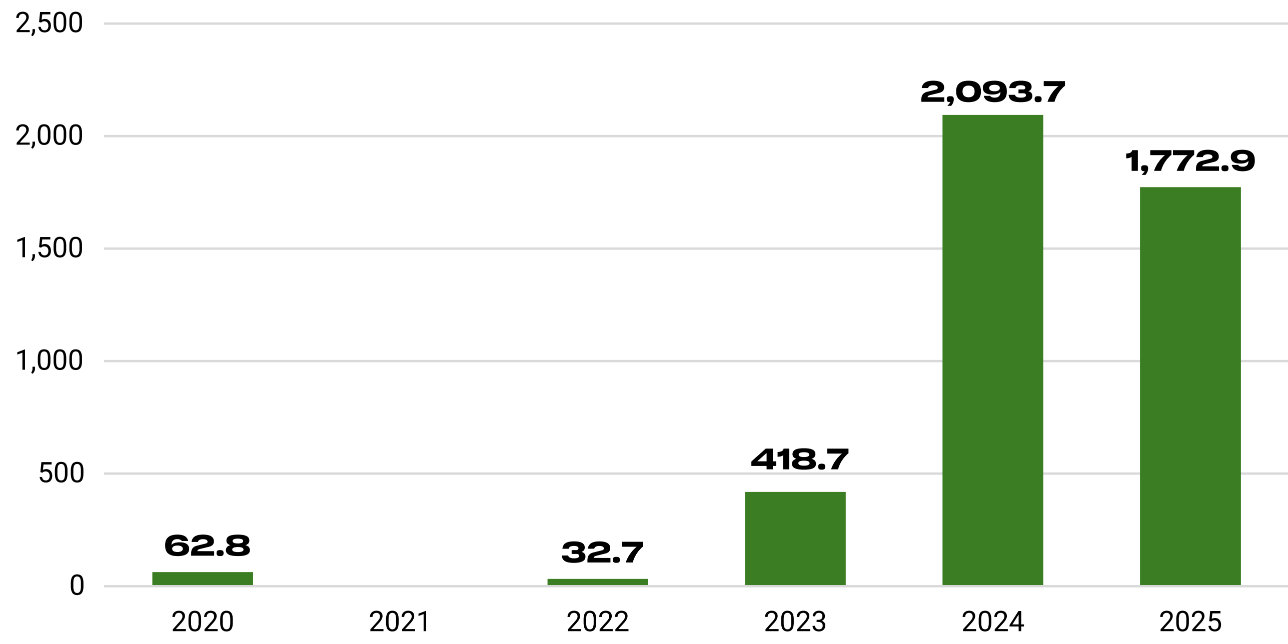


Fig. 2. **INSTALLED CAPACITY OF SPPs (2020–2025), kW**



The selected facilities allow for the utmost utilization of the potential of solar power plants, given their year-round operation and electricity consumption patterns that closely match the profile of solar generation (especially for healthcare facilities). Data as regards typical consumption and generation profiles under various weather conditions for healthcare institutions and water utility facilities can be seen in *Figures 3 and 4.*

Fig. 3. **TYPICAL DAILY ELECTRICITY CONSUMPTION BY A HEALTHCARE FACILITY AND SOLAR POWER GENERATION AT VARIOUS LEVELS OF SOLAR INSOLATION**

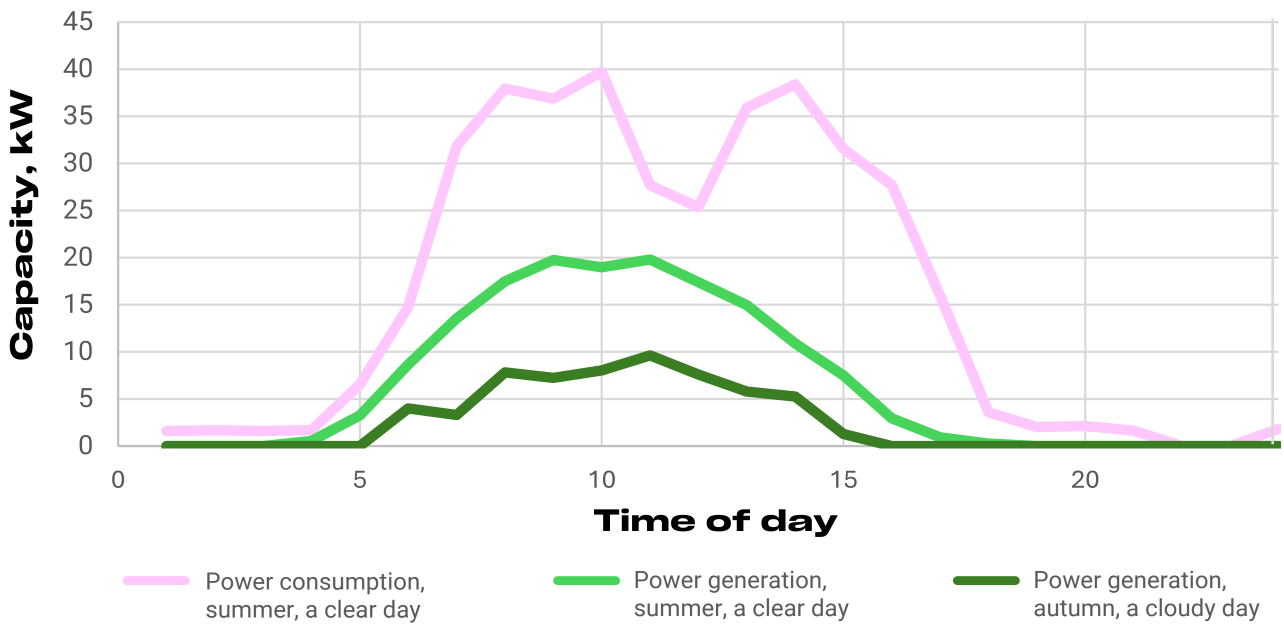
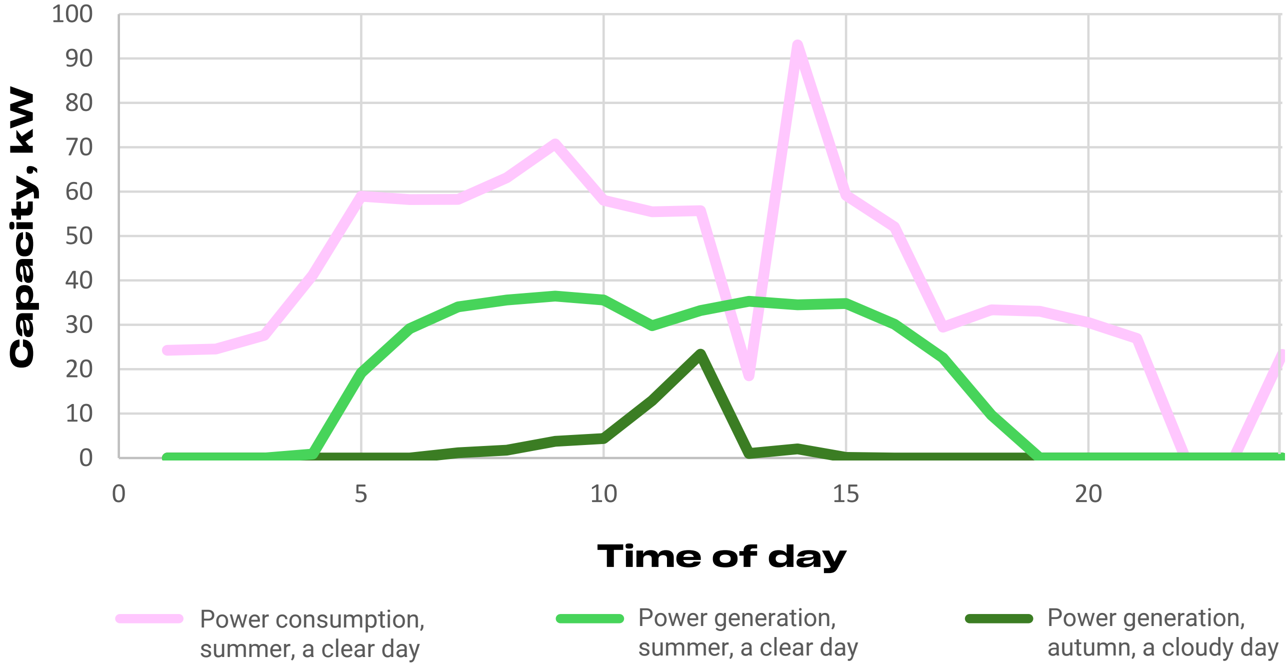


Fig. 4. **TYPICAL DAILY ELECTRICITY CONSUMPTION BY WATER UTILITY FACILITY AND SOLAR POWER GENERATION AT VARIOUS LEVELS OF SOLAR INSOLATION**



2.2 Project implementation stages

A typical **PROJECT IMPLEMENTATION CYCLE** consisted of the following stages:

1. Development of a feasibility study (FS) or preliminary feasibility study (PFS)
2. Drafting of design and cost estimate documentation (including an analysis of the load-bearing capacity of building structures for rooftop SPPs or geological and geodetic investigations for ground-mounted SPPs)
3. Implementation
4. User support and monitoring of results

The above specified approach to project implementation made it possible to minimize risks while selecting the sites and determining the capacity of SPPs and ensured the systematization of the results obtained. This laid the foundation for conducting training sessions for both solar power plant users and installation and design organizations.

The implementation of a series of projects enabled Ecoclub to be among the first in Ukraine to develop technical solutions for high-capacity hybrid solar power plants, specifically at water utility facilities.

2.3 Organization of monitoring of solar power plants operation

The process of collecting statistical data was significantly complicated as, following the results of the tender procedures, solar power plants, installed at the sites, were equipped with inverters made by different manufacturers and different online monitoring systems.

The problem was solved by integrating the performance data from all solar power plants into ASEM PV which is a specially developed system for monitoring the operation of solar power plants of various manufacturers, based on the ASEM energy monitoring system. ASEM PV allows for the collection and analysis of data both for all projects as a whole and for each SPP individually *(Figs. 5–7)*.

Fig. 5. OVERALL PERFORMANCE METRICS FOR ALL SOLAR POWER PLANTS CONNECTED TO THE ASEM PV SYSTEM

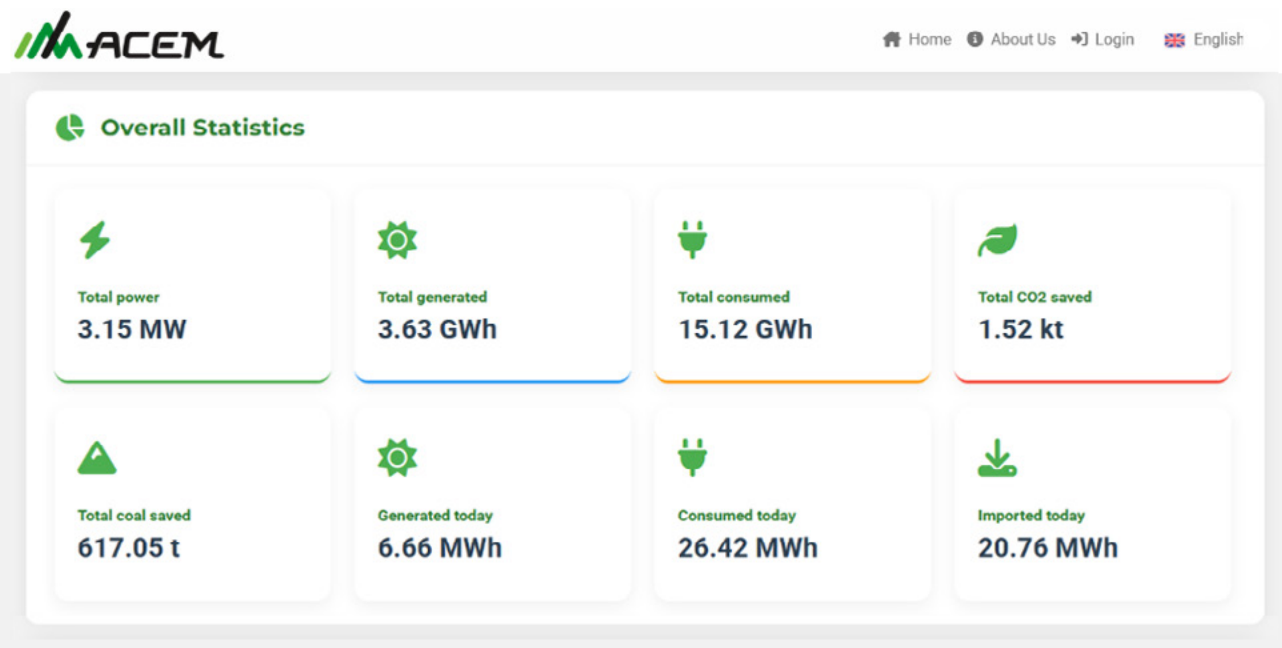


Fig. 6. INTERACTIVE MAP OF IMPLEMENTED PROJECTS CONNECTED TO THE ASEM PV SYSTEM

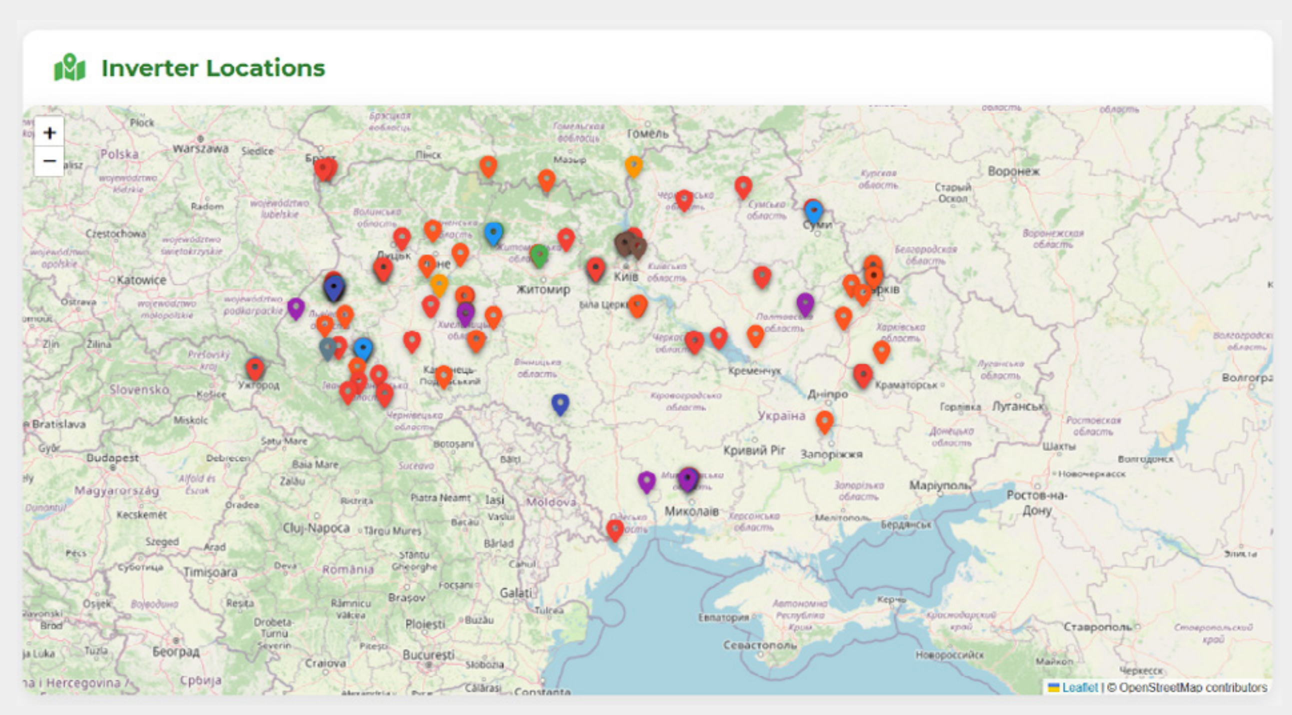
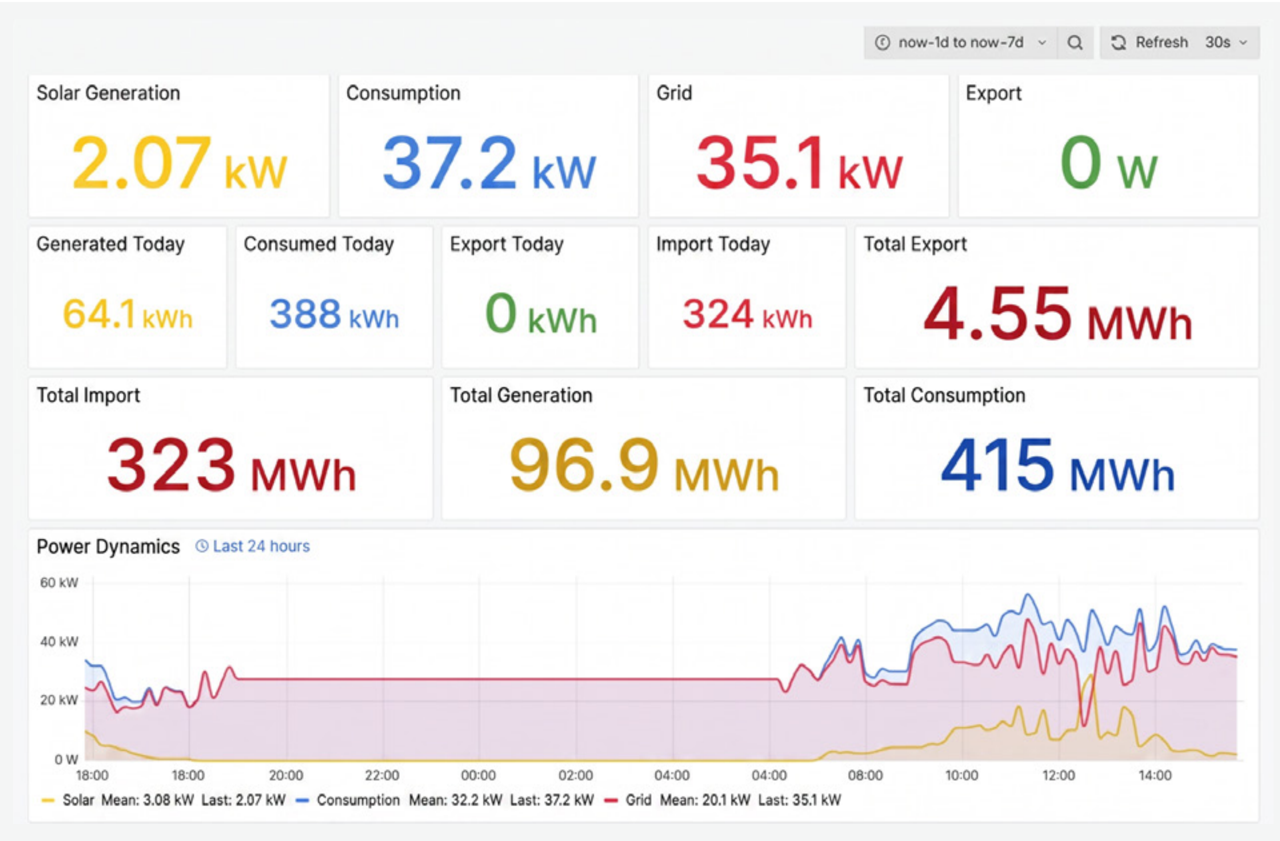
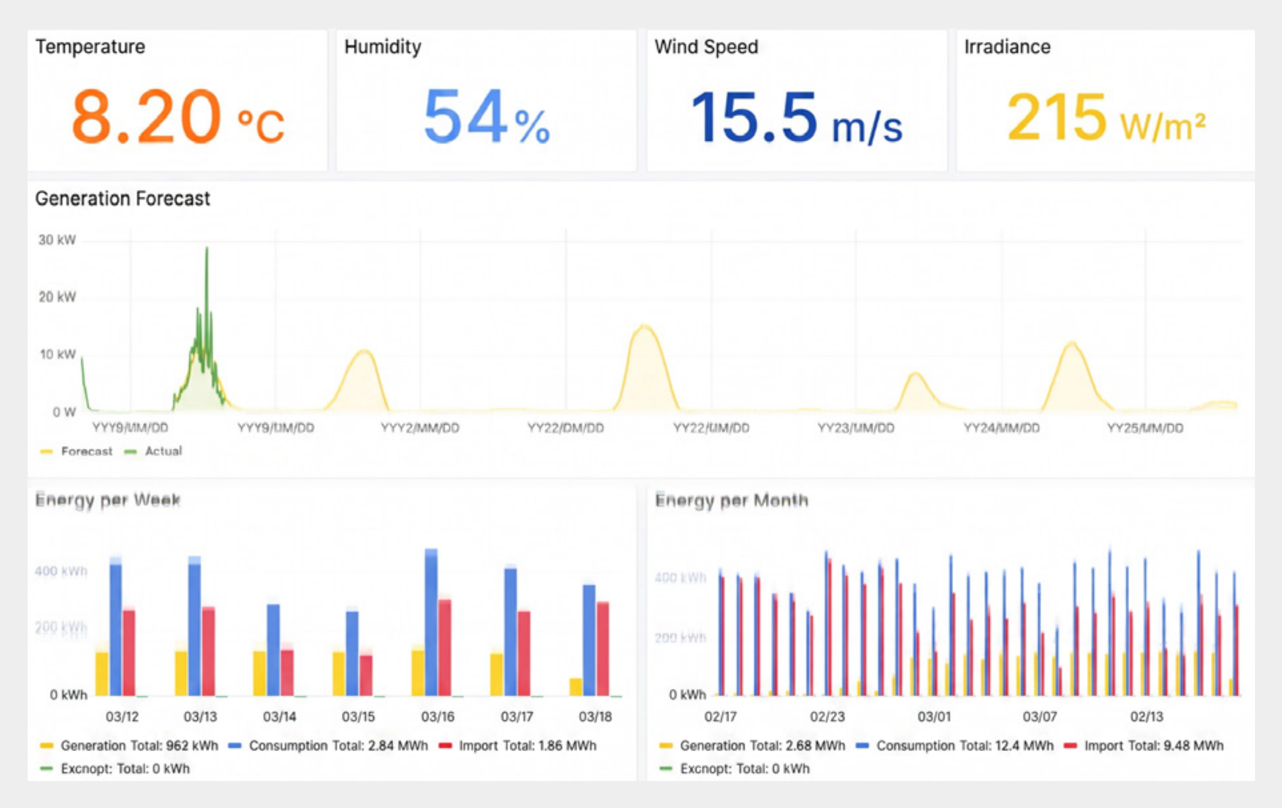
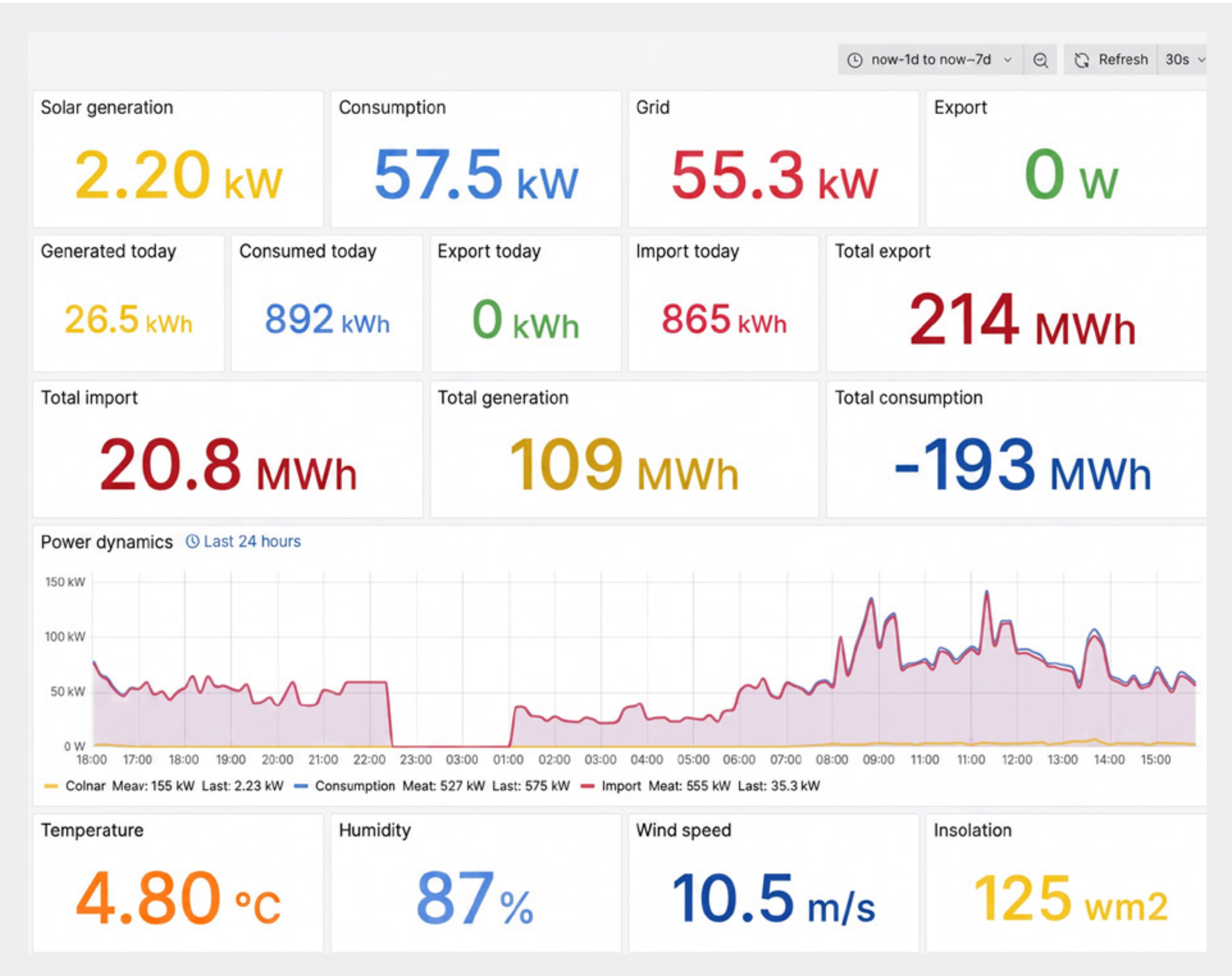
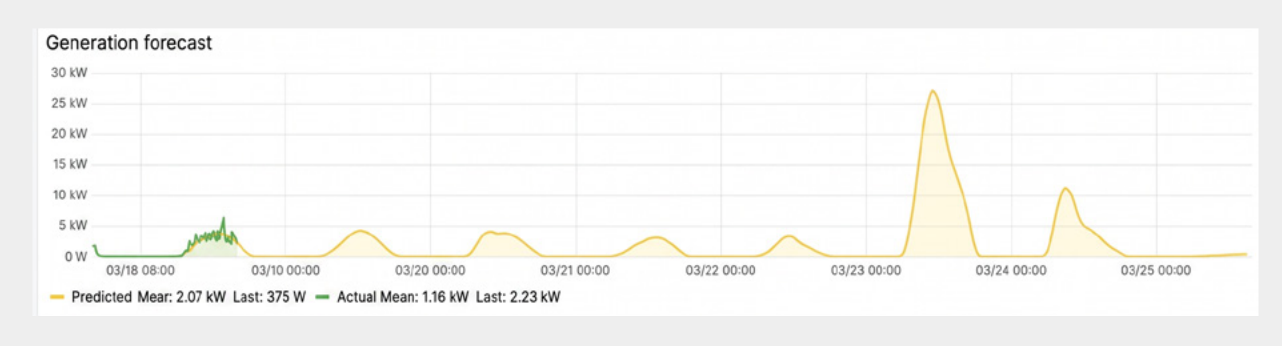


Fig. 7. ANALYSIS OF THE PERFORMANCE INDICATORS OF SPP FOR A SPECIFIC FACILITY




Temperature
8.20 °C
Humidity
54 %
Wind Speed
15.5 m/s
Irradiance
215 W/m²
Generation Forecast
30 kW
20 kW
10 kW
0 W
Forecast
Actual
Energy per Week
0 kWh
03/12
03/13
03/14
03/15
03/16
03/17
03/18
Generation Total: 962 kWh
Consumption Total: 2.84 MWh
Import Total: 1.86 MWh
Excnopt: Total: 0 kWh
Energy per Month
0 kWh
02/17
02/23
03/01
03/07
02/13
Generation Total: 2.68 MWh
Consumption Total: 12.4 MWh
Import Total: 9.48 MWh
Excnopt: Total: 0 kWh


now-1d to now-7d
Refresh
30s
Solar generation
2.20 kW
Consumption
57.5 kW
Grid
55.3 kW
Export
0 W
Generated today
26.5 kWh
Consumed today
892 kWh
Export today
0 kWh
Import today
865 kWh
Total export
214 MWh
Total import
20.8 MWh
Total generation
109 MWh
Total consumption
-193 MWh
Power dynamics
Last 24 hours
150 kW
100 kW
50 kW
0 W
18:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00 03:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 11:00 11:00 12:00 13:00 14:00 15:00
Colnar Meav: 155 kW Last: 2.23 kW
Consumption Meat: 527 kW Last: 575 kW
Import Meat: 555 kW Last: 35.3 kW
Temperature
4.80 °C
Humidity
87 %
Wind speed
10.5 m/s
Insolation
125 wm2



In the process of developing the system, data exchange protocols of various inverter manufacturers were analyzed, and the possibilities for obtaining information directly or through the manufacturers' cloud services were explored. This led to the launch of the information system that collects and analyzes hourly, daily, and monthly operational data from solar power plants, including electricity generation, on-site consumption (if the inverter supports this feature), and CO_2 emissions reduction.

Such an approach makes it possible to determine the extent to which the energy needs of the facilities are met, as well as to develop recommendations for improving the efficiency of future projects. Moreover, open access to the online system may serve as an incentive for communities to implement similar solutions.

To ensure the objectivity of the assessment, a uniform approach to data collection and processing was applied throughout this study, allowing for comparisons of results across sites and years.

DATA SOURCES:

1. Hourly, daily, and monthly generation metrics from inverters (monitoring systems) integrated into ASEM PV

2. Data on the consumption of the facility from inverters or meters

3. Technical specifications of the stations (capacity of PV arrays, inverters, and batteries) as specified in the design and as-built documentation

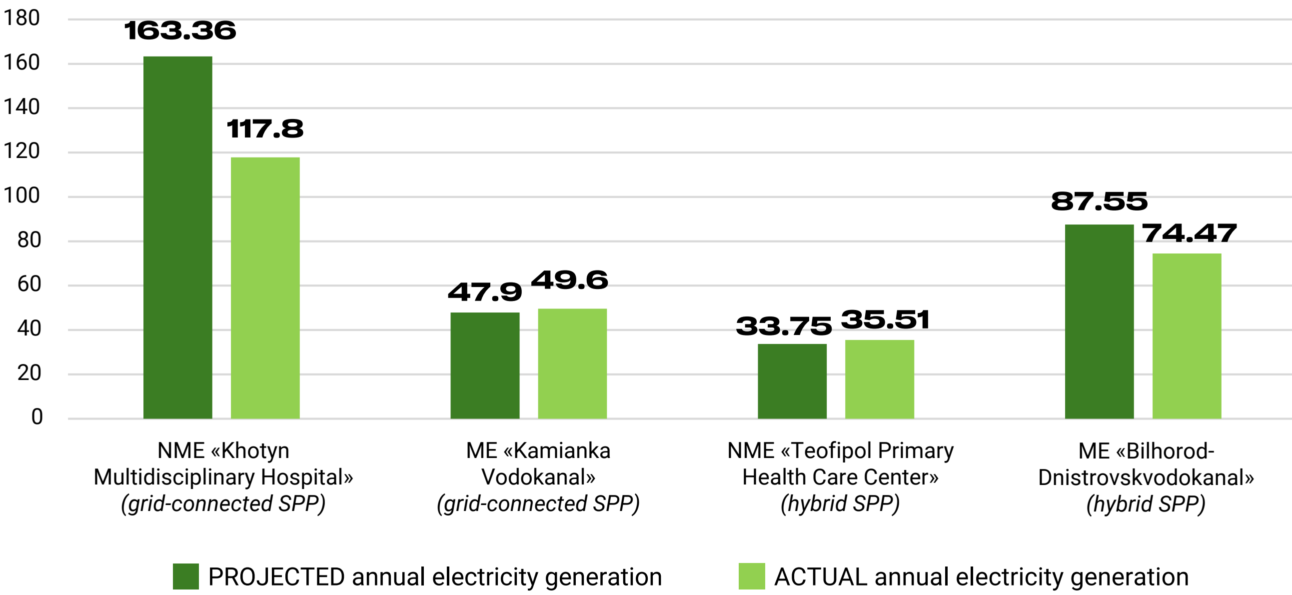
THE ANALYSIS PERIOD covered **2020–2025**, including historical data of the stations connected to ASEM PV.

QUALITY CONTROL involved checking the data for completeness (the presence of continuous time series), ensuring the correctness of units of measurement, and detecting logical anomalies (zero generation values during daylight hours, "spikes" in values, etc.). However, for some facilities, the data may be incomplete due to technical characteristics of the inverters or communication channels, and also because the station is in the process of being connected to the integrated monitoring system.

THE ANALYSIS METHODS included comparing generation and consumption profiles for typical days (sunny and cloudy periods), analyzing monthly generation, and assessing optimization potential (changing the consumption profile, adjusting battery charging and discharging modes, connecting additional consumers, or increasing capacity).

Figure 8 above shows a comparison of the projected annual electricity generation volumes specified in the design and cost estimate documentation and the actual annual generation based on online monitoring data from solar power plants for 2025. Four facilities have been selected for the analysis: two grid-connected solar power plants (Non-profit Municipal Enterprise «Khotyn Multidisciplinary Hospital», Municipal Enterprise «Kamianka Vodokanal») and two hybrid solar power plants (Non-profit unicipal enterprise «Teofipol Primary Health Care Center», Municipal Enterprise «Bilhorod-Dnistrovskvodokanal»).

Fig. 8. COMPARISON OF PROJECTED AND ACTUAL ANNUAL GENERATION OF GRID-CONNECTED AND HYBRID SPPs, 2025, thousands of kWh



3 RESULTS OF PROJECT IMPLEMENTATION

1. At the sites where the projects were implemented, the **RELIABILITY OF THE POWER SUPPLY SIGNIFICANTLY IMPROVED**, which was particularly timely following the resumption of shelling targeting Ukraine's energy infrastructure and the resulting prolonged power outages. In addition to ensuring operational continuity during outages, the projects also helped reduce fuel consumption by backup diesel generators.

Fig. 9. OPERATION OF A WATER UTILITY FACILITY WITH A HYBRID SOLAR POWER PLANT DURING A 21.5-HOUR POWER OUTAGE (DECEMBER 12, 2025)

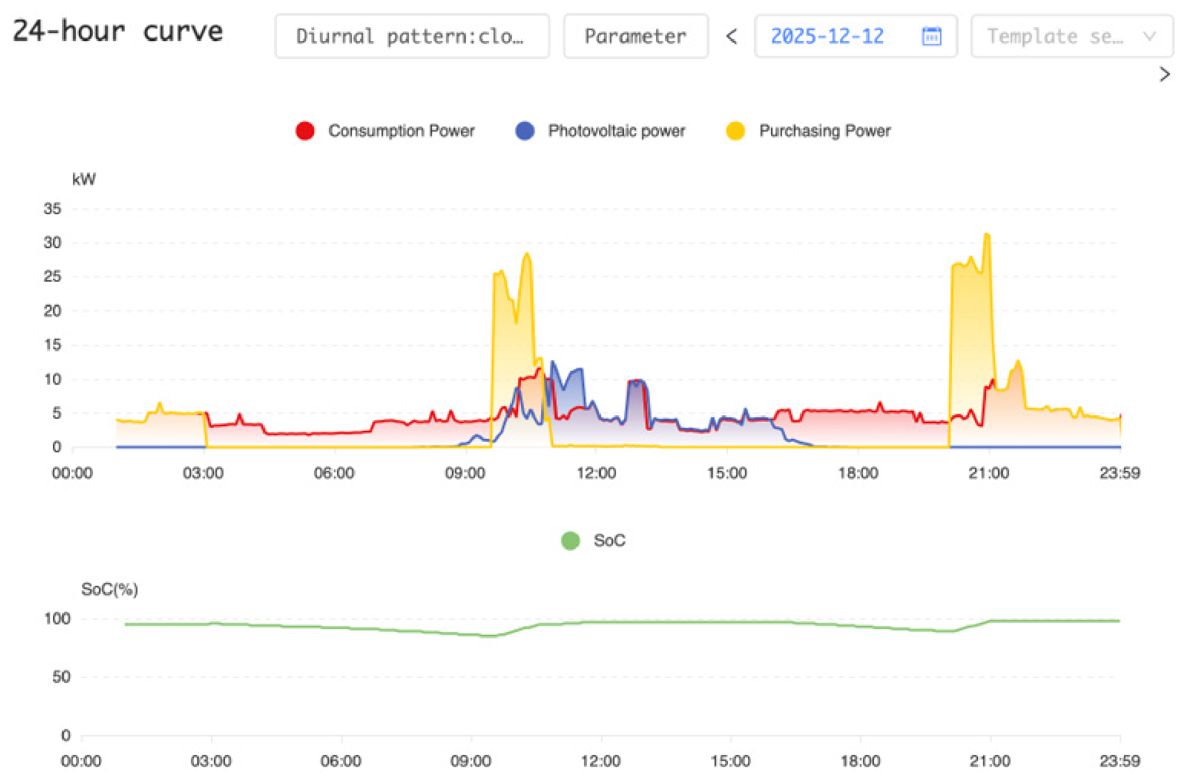
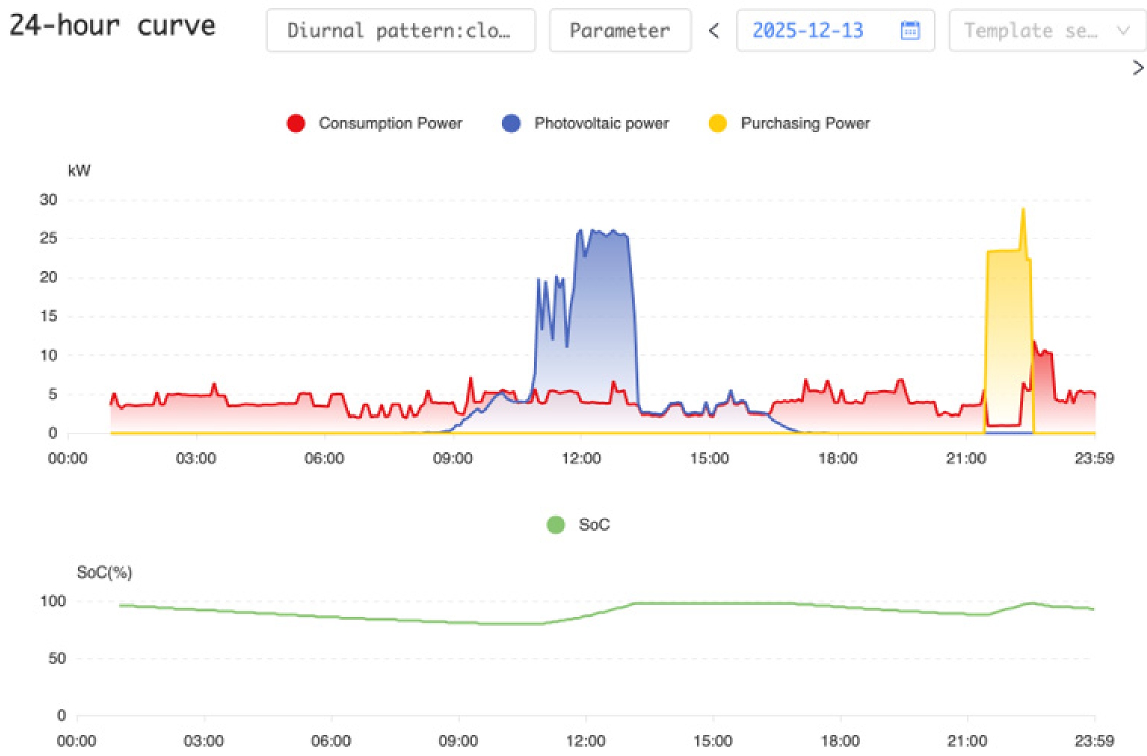


Fig. 10. OPERATION OF A WATER UTILITY FACILITY WITH A HYBRID SOLAR POWER PLANT DURING AN 11-HOUR POWER OUTAGE (DECEMBER 13, 2025)



To illustrate, *Figures 9 and 10* present the results of a battery-powered system that ensured the autonomous operation of a single water intake facility in Mykolaiv during the longest power outages, lasting 21.5 and 11 hours (December 12–13). In both cases, the facility's operation was fully powered by the solar power plant and the battery system.

Throughout the power outages, the battery charge level dropped by only 25%, indicating that there is sufficient capacity to keep the facility operational during prolonged periods of external electricity supply outages.

2. AGGREGATED INDICATORS OF SOLAR POWER SYSTEMS BASED ON DATA FROM THE ASEM PV MONITORING SYSTEM:

3.1 MW

TOTAL CAPACITY OF SPPs

Part of the solar power plants that have been installed are in the process of being connected to the grid.

3,630 thousand kWh

TOTAL ELECTRICITY GENERATED BY ALL SPPs SINCE THEIR INSTALLATION

As of February 2026.

1,130 metric tons

REDUCTION IN CO_2 EMISSIONS THROUGHOUT THE OPERATIONAL PERIOD

At the rate of 0.316 kg CO_2/kWh
in accordance with national standards.

3. OVER 40 COMMUNITIES ENHANCED THEIR AWARENESS AND INSTITUTIONAL CAPACITY FOR SOLAR GENERATION PROJECT IMPLEMENTATION

In the course of project implementation, training sessions were conducted for community representatives on both organizational matters and the subsequent maintenance and operation of equipment, which will enable communities to independently implement similar projects in the future.

4. A UNIFIED PROJECT MONITORING SYSTEM WAS IMPLEMENTED, PROVIDING DATA COLLECTION ON SPP OPERATION FROM INVERTERS OF VARIOUS MANUFACTURERS FOR FURTHER ANALYSIS

4 OVERALL RECOMMENDATIONS

FOR SOLAR POWER PROJECTS BASED ON THE RESULTS OF PROJECTS IMPLEMENTED FOR ENTERPRISES AND COMMUNITIES IN UKRAINE

1. The installation of solar power plants must be preceded by the **DEVELOPMENT OF A FEASIBILITY STUDY** that includes an analysis of actual electricity demand (based on monthly and hourly data), as well as information on connection diagrams and metering systems.

2. **MONITORING** the operations of a solar power plant, in particular, tracking the facility's overall electricity consumption, must be a mandatory component, as this will allow for the utilization of the potential of solar generation to the fullest extent.

3. In addition to technical deployment, **TRAINING** must be organized for personnel responsible for monitoring the operations of a solar power plant and basic settings, taking into account actual safety and cost challenges.

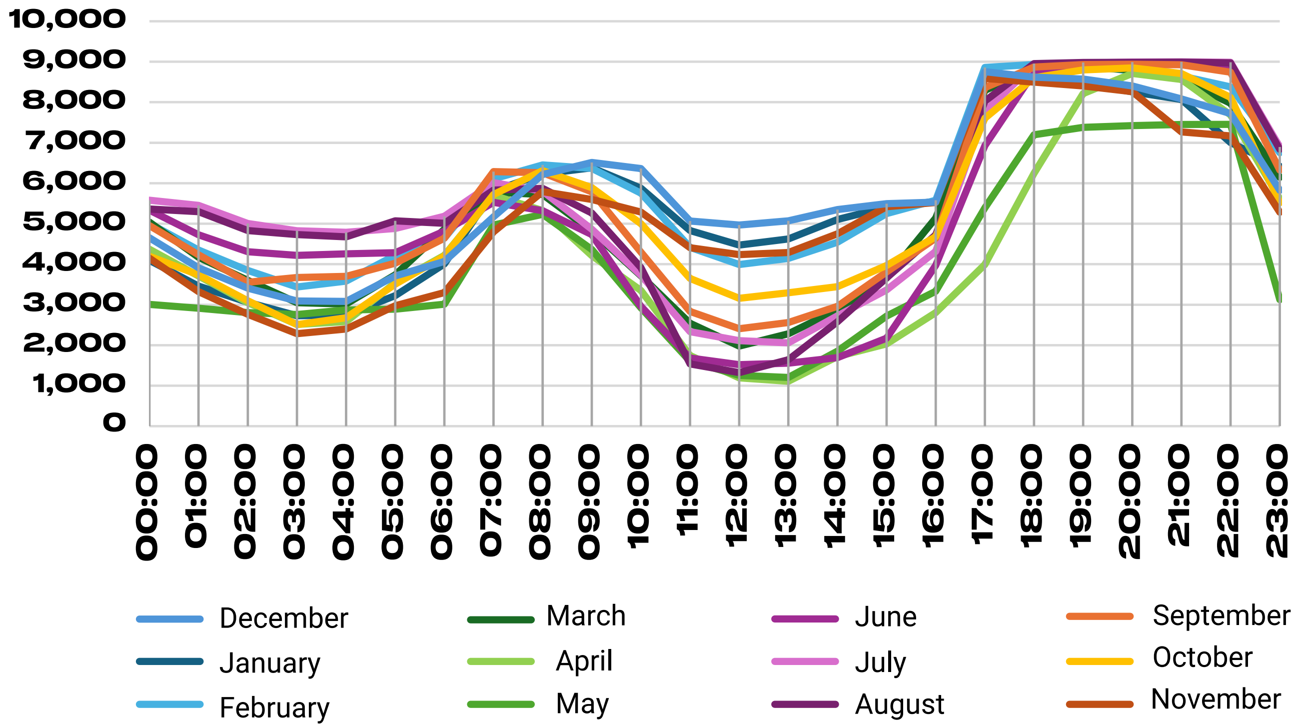
4. It is advisable to **PRIORITIZE HYBRID SOLAR POWER PLANTS**, which not only reduce energy consumption from the grid but also significantly increase the reliability of the power supply and, in the long term, make it possible to take advantage of the electricity market benefits.

5 ADDITIONAL RECOMMENDATIONS

FOR IMPLEMENTING SOLAR POWER PROJECTS THAT WILL IMPROVE THEIR EFFICIENCY DURING BOTH WARTIME AND PEACETIME

Currently, the increasingly complex situation in Ukraine's energy system and the analysis of the electricity market point to the potential for hybrid solar power plants to gain additional advantages. In particular, this relates to the consideration of electricity prices in the day-ahead market and the implementation of **HOURLY ELECTRICITY METERING**, which allows facilities to operate in the market as active consumers and shift their load from peak hours (when prices are high) to periods when electricity prices are low. Selling surplus electricity during daytime hours is often inefficient due to low prices.

Fig. 11. WEIGHTED AVERAGE PRICES IN THE DAY-AHEAD ELECTRICITY MARKET FOR 2025, UAH/MWh



The **ANALYSIS OF DAILY GRAPHS** reveals that during hours of peak solar radiation (primarily from 10:00 a.m. to 3:00 p.m. in spring and summer), electricity generation from the SPP exceeded the facility's consumption in some cases. Given the low cost of electricity during peak solar generation hours, the primary strategy should be to store surplus electricity and use it primarily in the evening hours. In addition to providing a direct benefit to a solar power plant owner, this will also help stabilize the operations of Ukraine's energy system.

When **USING ELECTRIC HEATERS** for hot water supply, it is advisable to use thermal storage tanks, which are significantly cheaper than electric ones and can be integrated with district heating systems during the winter, when solar radiation is at its lowest and cannot fully meet the demand for energy. Consequently, the efficiency of not only hybrid but also grid-connected solar power plants can be increased at minimal cost.

ADDITIONAL OPPORTUNITY for the facilities with hybrid systems lies in optimizing the charging and discharging of batteries, which will allow for fuller utilization of solar power generation (on days when there is surplus electricity).

THE HOURLY PROFILE of the weighted average prices in the day-ahead electricity market for 2025[1] (including November–December 2024) exhibits a pattern typical of a power system with a high share of solar power plants: relatively high nighttime prices, a sharp drop during the day (especially between 10:00 a.m.–2:00 p.m.), and a rapid rise in price until the evening peak *(Fig. 11)*. The daily average price is around 5.0–5.5 thousand UAH/MWh. The average annual price during off-peak hours is approximately 2.5 thousand UAH/MWh, while during peak hours (6:00 p.m.–10:00 p.m.) it reaches 8.1–9.0 thousand UAH/MWh (until September 2025).

Thus, the difference between the minimum and maximum values exceeds 6 UAH, which is an extremely high level of price differentiation within a single day.

1 https://www.oree.com.ua/index.php/control/results_mo/DAM

Given the SPPs already in operation and the prospects for implementing new ones, this allows for further **OPTIMIZATION BY SETTING CHARGING AND DISCHARGING PERIODS** for the energy storage system. The load at the facility will be redistributed from the evening hours (when coal-fired power plants typically operate in the power grid) to daytime periods, when there is the surplus of solar generation at previously built high-capacity industrial solar power plants. The given strategy can be implemented provided that hourly electricity metering is available, and the staff has necessary qualifications.

Recommendations for further development and/or optimization, which can be implemented by the owners of SPPs, have been prepared for several solar power plants.

CONCLUSIONS

The completed projects have proven effective and have significantly mitigated the effects of prolonged power outages for a number of facilities.

In addition to direct benefits, the installation of solar power plants has significantly enhanced the institutional capacity of communities, both those that participated in the project and those that took part in training workshops. The experience gained through the project has helped spread the information about the best practices for installing solar power plants among other communities and civil society organizations. The qualifications and expertise of the installation and design firms involved in the projects have also improved, largely due to effective supervision by the ordering party.

From a technical standpoint, it is worth noting that the implementation of a number of projects has led to rethinking and adaptation of approaches to SPP construction. Specifically, a shift to the focus on hybrid systems has been observed

APPENDIX

contractors' certificates

Міністерство освіти та науки України
Київський національний університет технологій та дизайну

КВАЛІФІКАЦІЙНИЙ АТЕСТАТ

№ EE202322

Цей кваліфікаційний атестат засвідчує, що

Прокопенко Дмитро Русланович

на підставі рішення атестаційної комісії
Київського національного університету технологій та дизайну
від 13 липня 2023 року № EE202322
має право провадити діяльність з
проведення сертифікації енергетичної ефективності будівель.

Кваліфікаційний сертифікат діє до 13 липня 2028 року.

Ректор КНУТД І.М. Грищенко

Голова атестаційної комісії І.В. Панасюк

м. Київ

КВАЛІФІКАЦІЙНИЙ СЕРТИФІКАТ

№ ЕА 02070921/000082-25

Від 26 березня 2025 р..

Засвідчує те, що

Рішенням комісії з проведення процедури присвоєння (підтвердження) професійної кваліфікації (протокол №3 від 26.03.2025 року) Кваліфікаційного центру "Центр підготовки енергоменеджерів навчально-наукового інституту енергозбереження та енергоменеджменту (НН ІЕЕ) Національного технічного університету України "Київський політехнічний інститут імені Ігоря Сікорського" (*сертифікат про акредитацію кваліфікаційного центру №294, виданий Національним агентством кваліфікацій 24 вересня 2024 року*)

ПРОКОПЕНКУ ДМИТРУ РУСЛАНОВИЧУ

присвоєно повну професійну кваліфікацію
"ЕНЕРГЕТИЧНИЙ АУДИТОР ПРОЦЕСІВ 7 рівень НРК"

АНАТОЛІЙ ЧЕРНЯВСЬКИЙ
Голова комісії – Керівник Центру підготовки енергоменеджерів

ОКСАНА ВОВК
Директор НН ІЕЕ

Міністерство освіти і науки України
Київський національний університет будівництва і архітектури

КВАЛІФІКАЦІЙНИЙ АТЕСТАТ

№ АА000220

Цей кваліфікаційний атестат засвідчує, що

Литвин Вадим Іванович

на підставі рішення атестаційної комісії
Київського національного університету будівництва і архітектури
від 11 травня 2023 року № АА000220
має право провадити діяльність з
проведення аудиту енергетичної ефективності будівель.

Строк дії кваліфікаційного атестата до 10 травня 2028 року.

Ректор П.М. Куліков

Голова атестаційної комісії В. О. Плоский

м. Київ

КВАЛІФІКАЦІЙНИЙ СЕРТИФІКАТ

№ ЕА 02070921/000079-25

Від 26 березня 2025 р..

Засвідчує те, що

Рішенням комісії з проведення процедури присвоєння (підтвердження) професійної кваліфікації (протокол №3 від 26.03.2025 року) Кваліфікаційного центру "Центр підготовки енергоменеджерів навчально-наукового інституту енергозбереження та енергоменеджменту (НН ІЕЕ) Національного технічного університету України "Київський політехнічний інститут імені Ігоря Сікорського" (*сертифікат про акредитацію кваліфікаційного центру №294, виданий Національним агентством кваліфікацій 24 вересня 2024 року*)

ЛИТВИНУ ВАДИМУ ІВАНОВИЧУ

присвоєно повну професійну кваліфікацію
"ЕНЕРГЕТИЧНИЙ АУДИТОР ПРОЦЕСІВ 7 рівень НРК"

АНАТОЛІЙ ЧЕРНЯВСЬКИЙ
Голова комісії – Керівник Центру підготовки енергоменеджерів

ОКСАНА ВОВК
Директор НН ІЕЕ

aee

The Association of Energy Engineers
certifies that

Vadym Lytvyn

has completed the prescribed standards for certification, has demonstrated a high level of competence and ethical fitness, and is hereby granted the title of

Certified Measurement & Verification Professional

Valid: January 1, 2024 - December 31, 2026 | Certification ID: 90306

Certification Board Chair

Certification Director

CMVP

aee

The Association of Energy Engineers
certifies that

Vadym Lytvyn

has completed the prescribed standards for certification, has demonstrated a high level of competence and ethical fitness, and is hereby granted the title of

Certified Energy Manager

Valid: December 29, 2023 - December 31, 2026 | Certification ID: 94054

Certification Board Chair

Certification Director

CEM

TRANSLATIONS FROM UKRAINIAN

Ministry of Education and Science of Ukraine
Kyiv National University of Technologies and Design

QUALIFICATION CERTIFICATE
No. EE202322

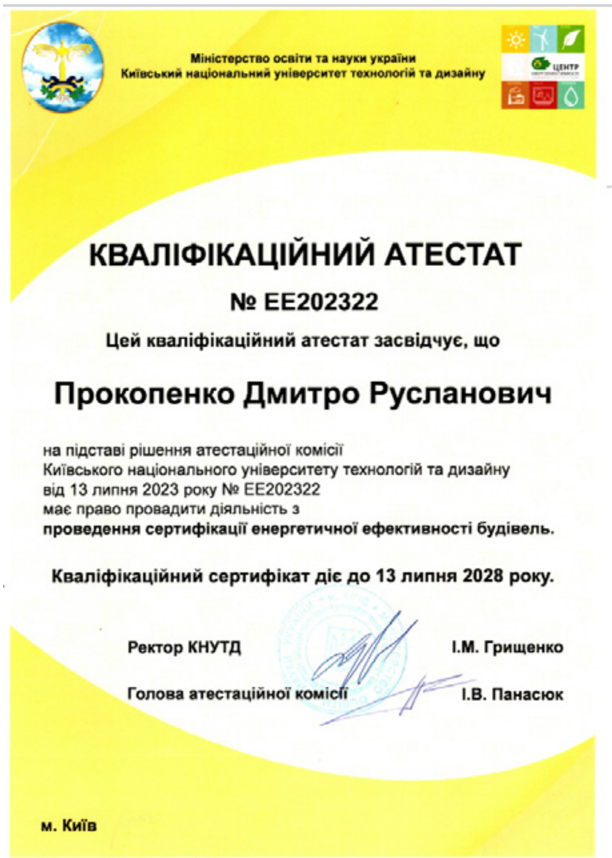
This qualification certificate certifies that

Prokopenko Dmytro Ruslanovych

on the basis of the decision of the attestation commission
of Kyiv National University of Technologies and Design
dated July 13, 2023, No. EE202322
has the right to conduct activities on
building energy efficiency certification.

The qualification certificate is valid until July 13, 2028.

Rector of KNUTD:	[Signature]	**I.M. Gryshchenko**
Head of the Attestation Commission:	[Signature]	**I.V. Panasiuk**



Міністерство освіти та науки україни
Київський національний університет технологій та дизайну

КВАЛІФІКАЦІЙНИЙ АТЕСТАТ

№ ЕЕ202322

Цей кваліфікаційний атестат засвідчує, що

Прокопенко Дмитро Русланович

на підставі рішення атестаційної комісії
Київського національного університету технологій та дизайну
від 13 липня 2023 року № ЕЕ202322
має право провадити діяльність з
проведення сертифікації енергетичної ефективності будівель.

Кваліфікаційний сертифікат діє до 13 липня 2028 року.

Ректор КНУТД	І.М. Грищенко
Голова атестаційної комісії	І.В. Панасюк

м. Київ

QUALIFICATION CERTIFICATE

No. EA 02070921/000082-25
Dated March 26, 2025

Certifies that

By the decision of the commission for the procedure of awarding (confirming) professional qualifications (minutes No. 3 as of March 26, 2025) of the Qualification Center "Energy Managers Training Center of the Educational and Scientific Institute of Energy Saving and Energy Management (ESI IEE) of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (*certificate of accreditation of the qualification center No. 294, issued by the National Agency for Qualifications on September 24, 2024*)

PROKOPENKO DMYTRO RUSLANOVYCH

has been awarded the full professional qualification

"ENERGY AUDITOR OF PROCESSES, 7th NRK Level"

Anatolii Cherniavskyi [Signature]
Head of the Commission
Head of the Energy Managers Training Center

Oksana Vovk [Signature]
Director of ESI IEE


КВАЛІФІКАЦІЙНИЙ СЕРТИФІКАТ

№ ЕА 02070921/000082-25
Від 26 березня 2025 р..

Засвідчує те, що

Рішенням комісії з проведення процедури присвоєння (підтвердження) професійної кваліфікації (протокол №3 від 26.03.2025 року) Кваліфікаційного центру "Центр підготовки енергоменеджерів навчально-наукового інституту енергозбереження та енергоменеджменту (НН ІЕЕ) Національного технічного університету України "Київський політехнічний інститут імені Ігоря Сікорського" (*сертифікат про акредитацію кваліфікаційного центру №294, виданий Національним агентством кваліфікацій 24 вересня 2024 року*)

ПРОКОПЕНКУ ДМИТРУ РУСЛАНОВИЧУ

присвоєно повну професійну кваліфікацію
"ЕНЕРГЕТИЧНИЙ АУДИТОР ПРОЦЕСІВ 7 рівень НРК"

АНАТОЛІЙ ЧЕРНЯВСЬКИЙ
Голова комісії – Керівник Центру підготовки енергоменеджерів

ОКСАНА ВОВК
Директор НН ІЕЕ

Ministry of Education and Science of Ukraine
Kyiv National University of Construction and Architecture

QUALIFICATION CERTIFICATE
No. AA000220

This qualification certificate certifies that

Lytvyn Vadym Ivanovych

on the basis of the decision of the attestation commission
of Kyiv National University of Construction and Architecture
dated May 11, 2023, No. AA000220
has the right to conduct activities on
building energy efficiency auditing.

The validity period of the qualification certificate is until May 10, 2028.

Rector:	[Signature]	P.M. Kulikov
Head of the Attestation Commission:	[Signature]	V.O. Ploskyi

Міністерство освіти і науки України
Київський національний університет будівництва і архітектури

КВАЛІФІКАЦІЙНИЙ АТЕСТАТ

№ AA000220

Цей кваліфікаційний атестат засвідчує, що

Литвин Вадим Іванович

на підставі рішення атестаційної комісії
Київського національного університету будівництва і архітектури
від 11 травня 2023 року № AA000220
має право провадити діяльність з
проведення аудиту енергетичної ефективності будівель.

Строк дії кваліфікаційного атестата до 10 травня 2028 року.

Ректор	П.М. Куліков
Голова атестаційної комісії	В. О. Плоский

м. Київ

QUALIFICATION CERTIFICATE

No. EA 02070921/000079-25
Dated March 26, 2025

Certifies that

By the decision of the commission for the procedure of awarding (confirming) professional qualifications (minutes No. 3 as of March 26, 2025) of the Qualification Center "Energy Managers Training Center of the Educational and Scientific Institute of Energy Saving and Energy Management (ESI IEE) of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (*certificate of accreditation of the qualification center No. 294, issued by the National Agency for Qualifications on September 24, 2024*)

LYTVYN VADYM IVANOVYCH

has been awarded the full professional qualification

"ENERGY AUDITOR OF PROCESSES, 7th NRK Level"

Anatolii Cherniavskyi [Signature]
Head of the Commission
Head of the Energy Managers Training Center

Oksana Vovk [Signature]
Director of ESI IEE

КВАЛІФІКАЦІЙНИЙ СЕРТИФІКАТ

№ EA 02070921/000079-25

Від 26 березня 2025 р..

Засвідчує те, що

Рішенням комісії з проведення процедури присвоєння (підтвердження) професійної кваліфікації (протокол №3 від 26.03.2025 року) Кваліфікаційного центру "Центр підготовки енергоменеджерів навчально-наукового інституту енергозбереження та енергоменеджменту (НН ІЕЕ) Національного технічного університету України "Київський політехнічний інститут імені Ігоря Сікорського" (*сертифікат про акредитацію кваліфікаційного центру №294, виданий Національним агентством кваліфікацій 24 вересня 2024 року*)

ЛИТВИНУ ВАДИМУ ІВАНОВИЧУ

присвоєно повну професійну кваліфікацію
"ЕНЕРГЕТИЧНИЙ АУДИТОР ПРОЦЕСІВ 7 рівень НРК"

АНАТОЛІЙ ЧЕРНЯВСЬКИЙ
Голова комісії – Керівник Центру підготовки енергоменеджерів

ОКСАНА ВОВК
Директор НН ІЕЕ