

Heat Pump Awards 2026

Application submission

Guesthouse Zieleniec

Panasonic | Building Solutions Award

1. Application overview

Award category	Building Solutions
Title of the project	Guesthouse Zieleniec
Organisation Name	Panasonic
Exact address of the project	Pod Orlicą - Zieleniec 88, 57-340 Duszniki-Zdrój, Lower Silesian Voivodeship
Funding	Private; EU funds
Organisations involved in the project	ECOGRID Bartosz Choromański
Project ending date	27/10/2025
Project website	No answer provided.
Sector of application	Commercial

2. Applicant & EHPA contact details

Full name	Grzegorz Wojdyło
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Phone number	48726880083
EHPA member involved	None
Role of EHPA member	None

3. Project description and benefits

Project description (goal, problem addressed, and solution provided by the heat pump)

The goal was to modernize the heat source and replace a solid-fuel boiler. The heat pumps provide maintenance-free, environmentally friendly heating and domestic hot water, stable comfort, and lower operating costs. The project covers 100% of the heating demand of a commercial guesthouse designed for 34 guests while retaining the existing radiator system and eliminating the need for conventional peak-load heat sources.

Expected or achieved benefits

The system met customer expectations, delivering maintenance-free operation, thermal comfort, reduced costs and lower emissions.

Obstacles/barriers encountered during development

Challenges included the harsh mountain climate of Zieleniec, very high winter humidity leading to frequent defrost cycles, high supply-temperature requirements for radiator heating, and the complex hydraulic design needed to connect four monobloc heat pumps independently.

Why should this project win an award?

This project demonstrates that heat pumps can reliably replace solid-fuel heating even in a demanding mountain climate, with winter temperatures below -20°C. A cascade of four Panasonic Aquarea M-Series units provides 64 kW of heating capacity, covering the entire demand of a 34-guest guesthouse while using the existing radiator system. The result is maintenance-free heating and hot water, stable comfort and lower environmental impact, supported by approximately 20 kWp of photovoltaics.

4. Technical specifications

Capacity of unit(s)	Panasonic WH-WXG16ME8 16 kW Generation M, 400 V, quantity 4 (64 kW cascade).
Energy sources used	Energy source: electrically powered air-to-water heat pumps.
Coefficient of Performance (COP)	COP: 3.2.
Service provided	Application: Heating and DHW.
Refrigerant type	R290

Heat pump details (compressor technology, heat exchanger, system configuration)

The installation consists of four Panasonic Aquarea T-CAP M Series 16 kW air-to-water heat pumps (WH-WXG16ME8), using R290 refrigerant and Panasonic in-house R290 Scroll compressors with T-CAP injection technology. The outdoor heat exchangers feature Bluefin protection for operation in harsh ambient conditions. The four monobloc units are connected in a parallel cascade, providing a total nominal capacity of 64 kW. They are controlled as a cascade rather than as a two-stage system, with the automation staging the number of operating units according to demand and rotating compressor operation.

5. Renewable energy integration and grid response

Integration of renewable energy sources

No answer provided.

Response to energy demand / smart grid integration

The system responds to changing energy demand by automatically adjusting the number of operating heat pumps in the cascade. The control system stages the four units according to the building's current heating demand and rotates compressor operation to balance runtime. The 1,000-litre buffer tank helps stabilise operation and provides additional thermal storage, including during defrost cycles.

6. Innovation, monitoring and replicability

General (all awards)

Why the project is innovative *(all awards)*

Each monobloc heat pump is connected via independent pre-insulated pipelines to a common manifold linked to a 1,000-liter heating buffer. Advanced automation rotates compressors and stages heat pumps according to building demand, while allowing simultaneous heating and DHW production.

Monitoring approach (performance, cost, and carbon targets) *(all awards)*

The system is monitored through its control and automation system, which tracks operating conditions and heat pump performance. Data on energy consumption, operating hours and system performance can be analysed to optimise the number of operating units, identify deviations and maintain efficient operation. This data supports ongoing assessment of operating costs, energy efficiency and emissions reduction.

For Large Heat Pump or Building Solutions Award

Why the project serves as a model for others *(Large Heat Pump or Building Solutions Award)*

This project provides a strong model for other guesthouses, hotels, apartment buildings and commercial facilities because it demonstrates that a heat pump cascade can reliably replace solid-fuel heating even in a demanding mountain climate. The combination of four 16 kW Panasonic Aquarea M-Series units, automated cascade control, thermal storage and photovoltaics offers a scalable approach to achieving reliable heating, lower operating costs and reduced emissions.

Potential for expansion to other locations/industries *(Large Heat Pump or Building Solutions Award)*

Yes. Additional units can be added and the concept can be applied to other buildings.

Barriers to replication elsewhere *(Large Heat Pump or Building Solutions Award)*

No answer provided.

Business opportunities for expansion, licensing, or commercial production *(Large Heat Pump or Building Solutions Award)*

No answer provided.

For Innovation Award

Technology/technique developed solely for this project *(Innovation Award only)*

No answer provided.

Differentiation from state-of-the-art solutions & market maturity *(Innovation Award only)*

No answer provided.

Regional benefits (energy savings, emissions, jobs, infrastructure) *(Innovation Award only)*

No answer provided.

Commercial potential *(Innovation Award only)*

No answer provided.