





# RENEWABLE



## OVERVIEW

Case Study: Renewable Energy Upgrade for Old House, Llanigon

Project Overview

The Old House project in Llanigon underwent a comprehensive renewable energy transformation, incorporating solar photovoltaic (PV) and electrical systems alongside an advanced heat pump for heating.

This installation significantly enhances energy efficiency and reduces carbon emissions, making the home more sustainable and self-sufficient.





## Heating Solution: R290 Whisper Heat Pump

System Installed: R290 Whisper Comfort Compact Air Source Heat Pump

Hot Water Storage: 300L fresh hot water tank

Additional Heating Element: 1 radiator in the bedroom

Key Features of the Whisper Heat Pump:

- Environmentally Friendly Refrigerant: Utilizes propane (R290), which has zero global warming potential and does not contribute to ozone depletion.
- High Seasonal Performance: Boasts a SCOP of 5.7, making it eligible for maximum subsidy funding.
- Low Noise Operation: Features owl-wing silent-effect fan technology and a sound-optimized casing.
- Durability & Efficiency: Constructed with high-quality materials for long-term reliability and weather resistance.
- Smart Control & Monitoring:
  - Browser-based operation with no need for an app or software download.
  - Compatibility with Modbus, KNX, PV Synchro, DI, and Smart Grid.
  - Live and long-term data access from any device, ensuring full system control.
  - Intelligent notifications via SMS or email for error detection and resolution.

The Whisper R290 Heat Pump, coupled with a 300L fresh hot water tank, ensures the household has a steady supply of energy-efficient heating and hot water. The system integrates seamlessly with the solar PV setup, optimizing renewable energy usage and reducing operational costs.





## Solar and Electrical System

PV Array Size: 6.9kW

Solar Panels: Trina 430W bifacial panels

Number of Panels: 16

Inverter: Midea 5kW hybrid inverter

Battery Storage: Midea low voltage 5kWh modules

Number of Batteries: 4

Total Battery Storage: 20kWh

The solar PV system enables the household to generate clean electricity efficiently, ensuring energy independence and reducing reliance on grid power. The Midea 5kW hybrid inverter allows for seamless integration with battery storage, optimizing self-consumption and energy resilience during power outages.





## Project Benefits & Outcomes

- **Energy Independence:** The solar PV and battery system reduce reliance on grid electricity, enhancing energy security.
- **Lower Carbon Footprint:** By using renewable solar power and a low-GWP heat pump, the household significantly cuts emissions.
- **Improved Comfort & Efficiency:** The high-performance heat pump provides consistent indoor temperatures and hot water while maintaining low operational noise.
- **Financial Savings:** The integration of efficient technology leads to reduced energy bills and eligibility for government incentives.
- **Future-Proofed Home:** A durable, intelligent energy system ensures the property remains environmentally and financially sustainable for years to come.





## Conclusion

The Old House project in Llanigon serves as a model for sustainable home energy solutions. By combining advanced solar PV technology with an innovative heat pump system, the household benefits from a cost-effective, energy-efficient, and environmentally friendly setup. This installation demonstrates the potential of renewable technology in reducing carbon emissions while maximizing home comfort and energy security.













