Interreg Atlantic Area
HY4RES

Co-funded by the European Union

COMMUNITY ENERGY PILOT SITE

Senhora do Salto, Portugal



GENERAL INFORMATION

Moinho da Senhora do Salto, Aguiar de Sousa, Portugal

Located next to the **historic water mill** of Moinho da Senhora do Salto, on the Sousa River

Hybrid renewable energy system installed in **April 2026**

Achieve renewable energy self-sufficiency at community scale

Preserve and repurpose historic water mill infrastructure

Support replication across rural and heritage sites



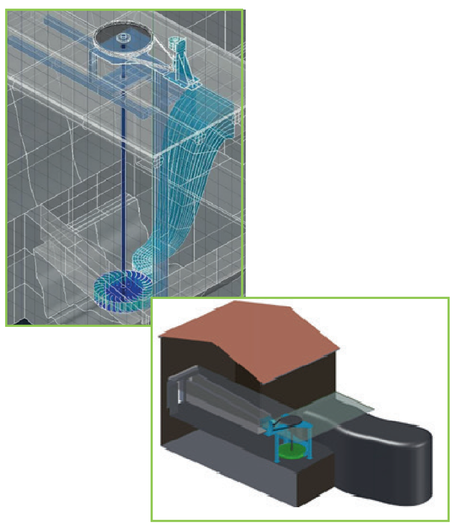
- **Automatic switching** between off-grid and grid-connected modes validated
- **Online monitoring** dashboard operational
- **Developing continuous IoT** data logging to monitor system performance
- **Using real-world measurements** to fine-tune energy management
- **Exploring additional generation** technologies to complement hydropower

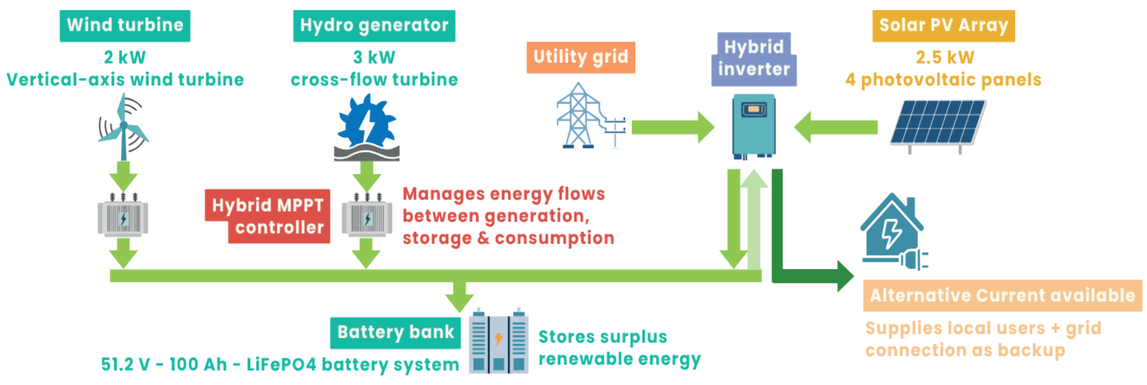
TYPES OF RENEWABLE ENERGY

Solar energy	Wind power	Hydropower
4 panels 2.5 kW	Vertical-axis turbine 2 kW	Cross-flow turbine 3 kW

Cross-flow turbines
Life cycle: **25 years**

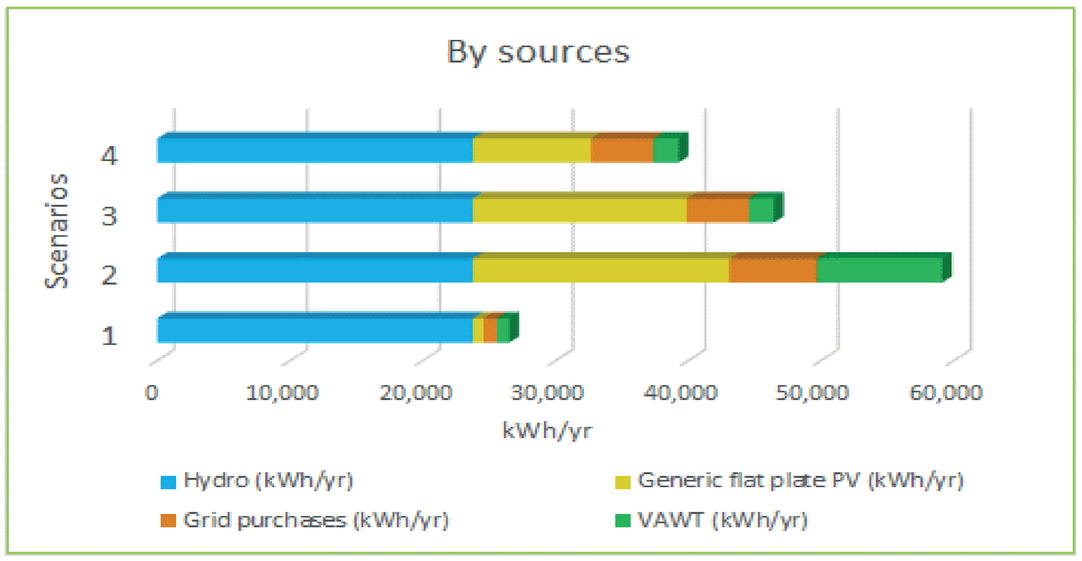
Turbine	Water wheel
Q inst (m^3/s)	1,100
Q min (m^3/s)	0,440
H liq (m)	3,60
P (kW)	24,90
E (kW)	104,000
Investment (€)	119,600





SCENARIOS

Configuration	LCOE (€/kWh)	NPV (€)	IRR (€)	Payback (yrs)
1 1 Household/Mill Museum/Airbnb	0.04	15,060	14%	6
2 3 Households/Mill Museum/Airbnb	0.07	35,359	10%	9
3 House + Restaurant + Church	0.07	38,860	13%	7
4 House + Church	0.05	20,183	13%	6.9
5 House + Restaurant	0.06	36,065	13%	6.3



MONITORING SYSTEM



Online monitoring dashboard measures voltage, current, battery SoC and power

INVESTMENT & ROI

Cost
€54,700

Hydro annual energy
€29,021 kWh

Total payback in
6 years