



Photo: NEUBAU best.energy



Roman Orthodox Church

Maximovka, Kazakhstan

After the world's first mosque, NEUBAU best.energy was also able to optimize the energy efficiency of a church in the village of Maximovka in the north of Kazakhstan. In an average winter, temperatures in this region fall below -32°C and exceed $+30^{\circ}\text{C}$ in summer. The planning goal was to realize a zero energy church in this extreme climate, which produces heat, cold and electricity on its own property.

The heat and cold production is covered by a brine heat pump and photovoltaic system. The total annual electrical power consumption including the heat and cold supply is 18,130 kWh per year. The photovoltaic system produces 23,899 kWh per year, the surplus is sold to the local power grid and may be purchased at the same price as sold. A probe field consisting of three deep probes with a depth of about 100 m serves as a sustainable energy source and is sufficient due to the thermal optimization of the building envelope.

Companies involved

Client

- Nikolay Mesharekov

General planning, energy planning, quality assurance

- NEUBAU best.energy David Michulec

Construction

- Photovoltaics: Kärnten Solar

Building services

- Stiebel Eltron

Project management

- Weissenseer JV OST GmbH

Facts

Church

Completed 2018. Area: 156 m²

Energy and environmental aspects

- Heat, cold and electricity is produced only at the own property. Surplus is sold
- Optimized thermal building envelope
- Photovoltaic system
- Brine heat pump, 3 deep probes with approx. 100m depth.

Characteristics

- Electricity consumption/year
(incl. heating and cooling): 18,130kWh/yr.
- Electricity production/year: 23.899 kWh/a



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