



“Simultaneous storage cooling and
greenhouse heating – double savings”

Martin Žigo, CEO



Technical details of the application

Heating capacity: 2,0 MW

COP: 5,31

Refrigerant: R134a

Heating source: Geothermal

Supplied temperature: 50–80°C

Picture 1: The plant – green
houses heated by heat pumps

Picture 2 & 3: The heat pump
installation

Source: Kronoterm

By

KRONOTERM



The “Lusty Heat Pump” – Implementation of heat pump technology in agriculture process to minimize heating costs and GHG emissions by utilizing geothermal energy

Use of geothermal energy, while reducing costs and environmental impact at the same time



Originally the company used to utilize geothermal energy (installed capacity of 2,7 MW) for heating green houses with heat exchangers in addition to gas furnace installed capacity of 6 MW.

The outlet temperature from borehole - 1,5 km deep - is 65 °C. They utilized geothermal source only down to 35 °C for heating of green houses, below this temperature the heat was not „useful“ anymore. Because of legislation in Slovenia the company couldn't pump higher volumes of geothermal energy, so they couldn't get more heat from heat exchangers, therefore they needed to implement HP technology.

Savings of up to 72 % compared to natural gas and producing up to 50 % less CO₂ emissions Kronoterm's new, unique heat pump for the greenhouse churns out a remarkable 2 MW. This is enough power to heat a community of 400 low-energy houses of 140 m². The working efficiency of the COP heat pump is excellent, varying between 5.1 and 6.0. This means 1 unit of electrical energy input to power the heat pump yields as many as 5 to 6 units of heat energy, far exceeding the expectations of investor. The entire investment was repayed in less than a year (ROI < 1 year) due to the negligible heating costs. The investor is thrilled to say that the new system is as much as 100% efficient in pumping geothermal energy from an incredible depth of 1500 m.