Nowab/Tangix Online
Värmepumpberäkning

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11743 Stockholm

Energy calculations

Nils Holgersson Huset

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Technology demonstration - results should not be used for investment decisions

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Indata

Project Data

Project name	**Nils Holgersson Huset**	Notes
Building		
Company	**http://www.nilsholgersson.nu**	

Energy/power consumption

Total (kWh)	**193 000**
Water heating (kWh)	**45 000**
Room temp curr (°C)	**20,0**
Selfheating (K)	**3,0**

Calculation method	**Known energy consumprion**
Energy (efficency)	*Net (gross)*
Electricity (100%)	**193 000 (193 000) kWh**

Installation

Heatpump	**1 * Geo_31**
Source	**Bore hole**
Type of rock	**Normal**
Conductivity (W/m·K)	**3.3**
Geometry	**Line / L-shape**
Max depth (m)	**200**
Depth to rock (m)	**5**
Horiz. distance between holes (m)	**20**
Spreading angle of holes (°)	**0**
Auxiliary power (kW)	**40,0**

City	**Bengtsfors**
Dim. Outdoor Temp (DOT) (°C)	**-17,2**
Avg. outdoor temp (°C)	**5,4**
Degreehours	**107 653**
Hot water boiler temp (°C)	**60**
Hot water boiler volume (m³)	**0.6**

Operation Parameters

Forward temp at DOT (°C)	**55**
Return temp at DOT (°C)	**45**

Avg temp of incoming brine (°C)	**0**
Avg temp diff brine in/out (K)	**3**

Calculation Results

Energy for heating and hot water	**193 000 kWh/year**
Maximum power for heating	**47,0 kW**
Power coverage at DOT	**51,1 %**
Energy coverage heat pump	**85,1 %**
Heating power of HP (incl. hot water) at DOT	**23,7 kW**
Avg. power HW (kW)	**5,1 kW**
Max electric power for heat pump and auxiliary heat	**39,9 kW**
COP1 (heat pump)	**3,55**
COPS (system)	**2,31**
Power deficency	**0,0 kW**
Energy deficency	**0 kWh/year**

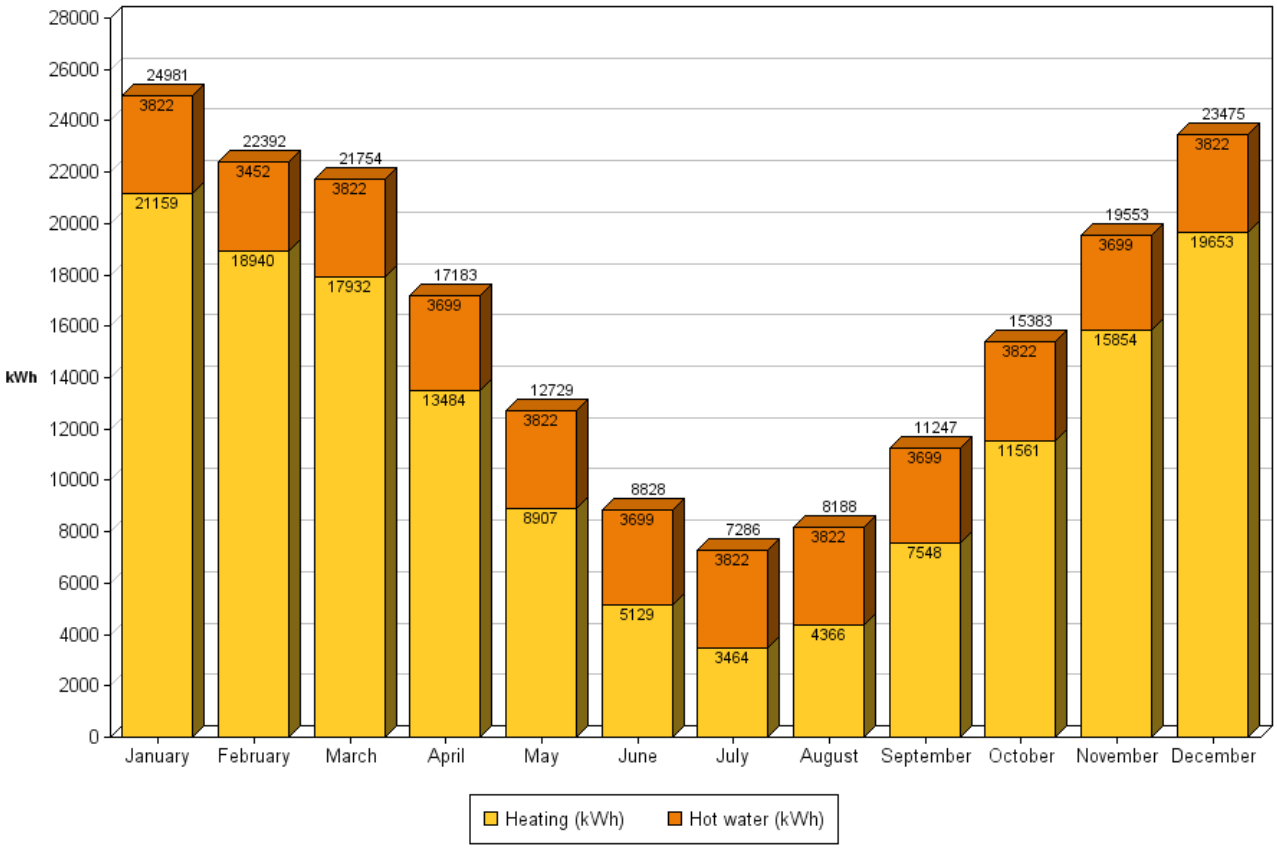
Teoretical active bore hole depth	**520 m**
Geometrically adapted active bore hole depth	**580 m**
Suggested number of holes and depth	**3 * 199 m**
Max cooling power HP	**18 kW**
Max brine flow	**1,4 l/s**
Total cooling energy HP	**118 010 kWh/year**

Energy from heat pump for heating	**138 837 kWh/year**
Energy from heat pump for hot water	**25 382 kWh/year**
Auxiliary energy for heating	**17 642 kWh/year**
Auxiliary energy for hot water	**19 618 kWh/year**
Total energy production	**201 479 kWh/year**

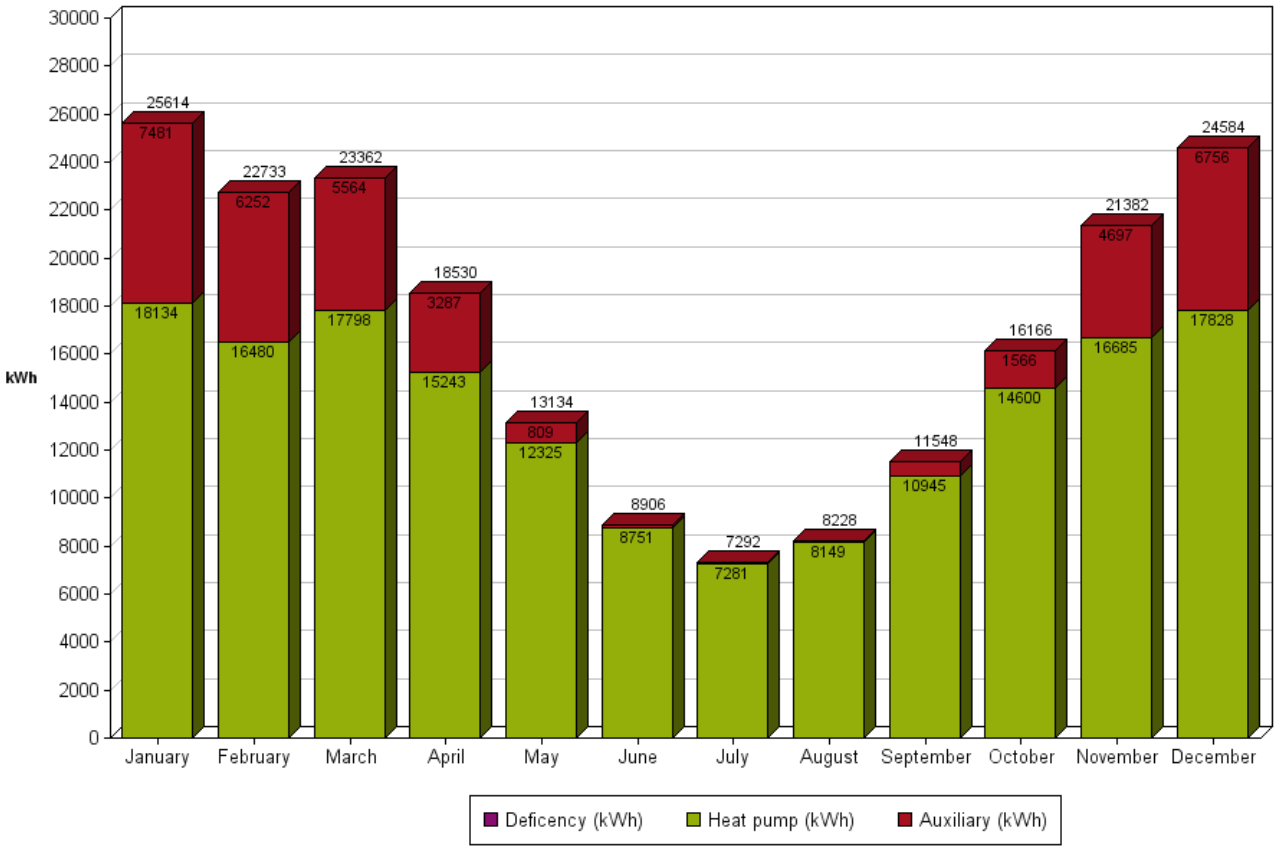
Electicity to heat pump for heating	**36 178 kWh/year**
Electicity to heat pump for hot water	**10 031 kWh/year**
Auxiliary energy for heating	**17 642 kWh/year**
Auxiliary energy for hot water	**19 618 kWh/year**
Total electricty consumption	**83 470 kWh/year**
Electricity (n=100%) as auxiliary	**37 261 kWh/year**

Energy savings **118 010 kWh/year**

Energy consumption/mon

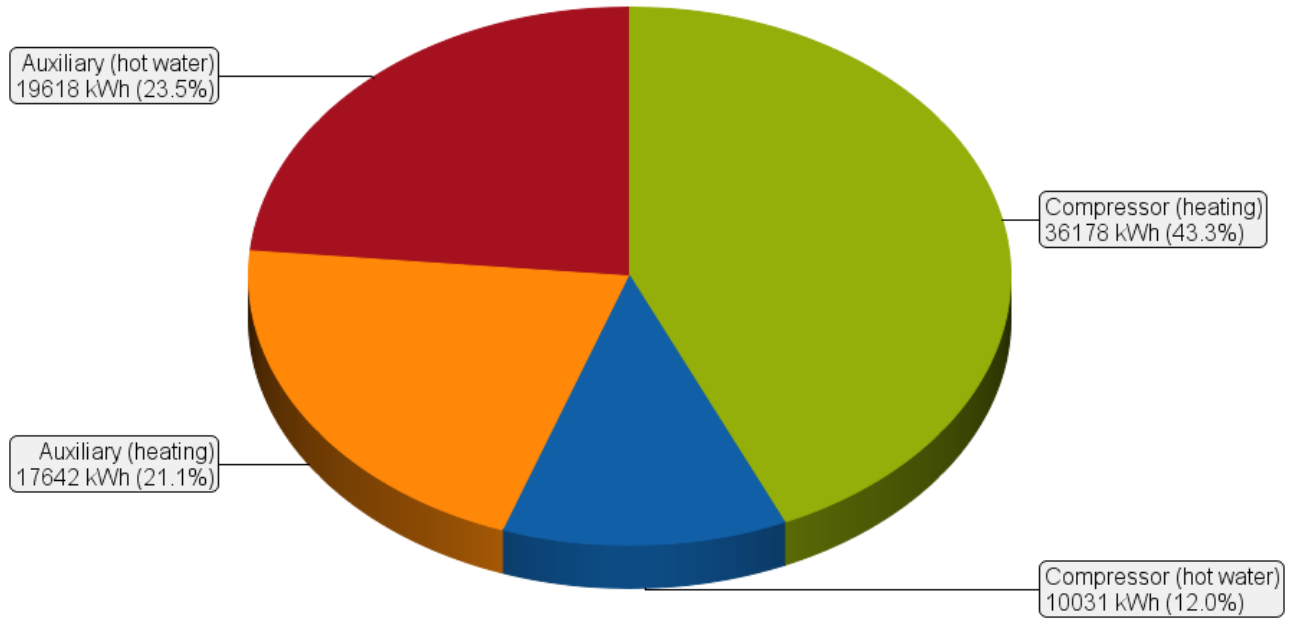


Energy production/mon

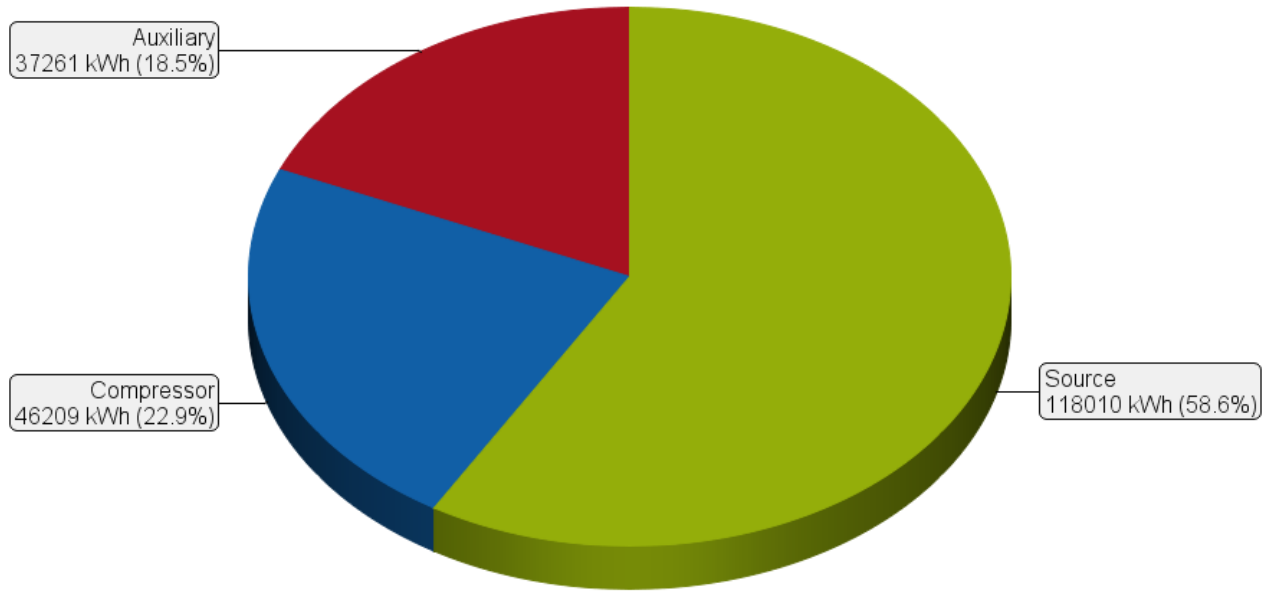


The calculations are based on a simplified model and that the given indata is correct. Presented results should not be considered as a promise.

Electricity consumption



Energy production



THIS EMPTY PAGE IS A PLACEHOLDER FOR TECHNICAL DATA OF THE *TGIX_BW* HEAT-PUMPS IN COPCALC THAT CAN BE INCLUDED IN THE CALCULATION REPORTS