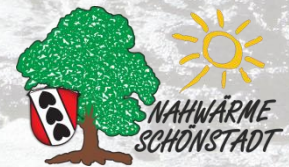


Energy transition out of the utility trap

The Local Heating Grid "Nahwärme Schönstadt"



Regine Hassenpflug
Opava 24.05.2013

- The Village
- The Rational: Why?
- The Project
 - ✓ Advantage of location
 - ✓ Feasibility Study
 - ✓ Project Group
 - ✓ Milestones
 - ✓ Costs
 - ✓ Building
 - ✓ Technology
- Factors of Success
- Overview



Schönstadt
Community of Cölbe
County Marburg-Biedenkopf
Hessen
Germany



- 1.600 inhabitants
- 380 households
- kindergarden,
primary school,
shop, doctor, bank
- several small and 2
medium sized
enterprises

Schönstadt won the contest „Our village has future“ in Hessen.



Why?

- **The environment:** Changing from fossil resources to renewables reduces CO₂ emissions and combats climate change.
- **The price:** Oil and gas are expensive and will increase as resources are depleted.
- **The village:** A reliable, clean and cheap local heating system makes the village attractive and independent.

www.schoenstadt.net



Ölheizung

Flüssiggasheizung

Ölheizung

Heizkosten heute mit eigenem Ölkessel

 Liter Öl: l

 Ölpreis/l in €: €

[aktuellen Preis ermitteln](#)

Es wird ein Wirkungsgrad von 90% angenommen daraus ergibt sich ein Energiebedarf von 25200 kWh

Investition

10.000 € Anschaffung neuer Kessel

Kosten für die Wärme pro Jahr

2380 € kW Wärmekosten (l Öl x Heizölpreis)

500 € Abschreibung Investition auf 20 Jahre

120 € Wartung Kessel und Brenner

140 € Stromkosten

70 € Schornsteinfeger

3210 € Summe Jahreskosten

[Anfrage absenden](#)
Nahwärme

Heizkosten mit Nahwärme

Wärmebedarf: 25200 kWh

 Preis Kilowattstunde kWh: **0.0976 €**
Investition

5.000 € Genossenschaftsanteile (nicht verloren)

2.000 € Installation im Haus

Kosten für die Wärme pro Jahr

2460 € (kW x Wärmepreis)

175 € Abschreibung Investition (40 Jahre)

143 € Grundpreis (11,90 €/Monat Verwaltung Ablesen Service)

14 € Stromkosten

2792 € Summe Jahreskosten

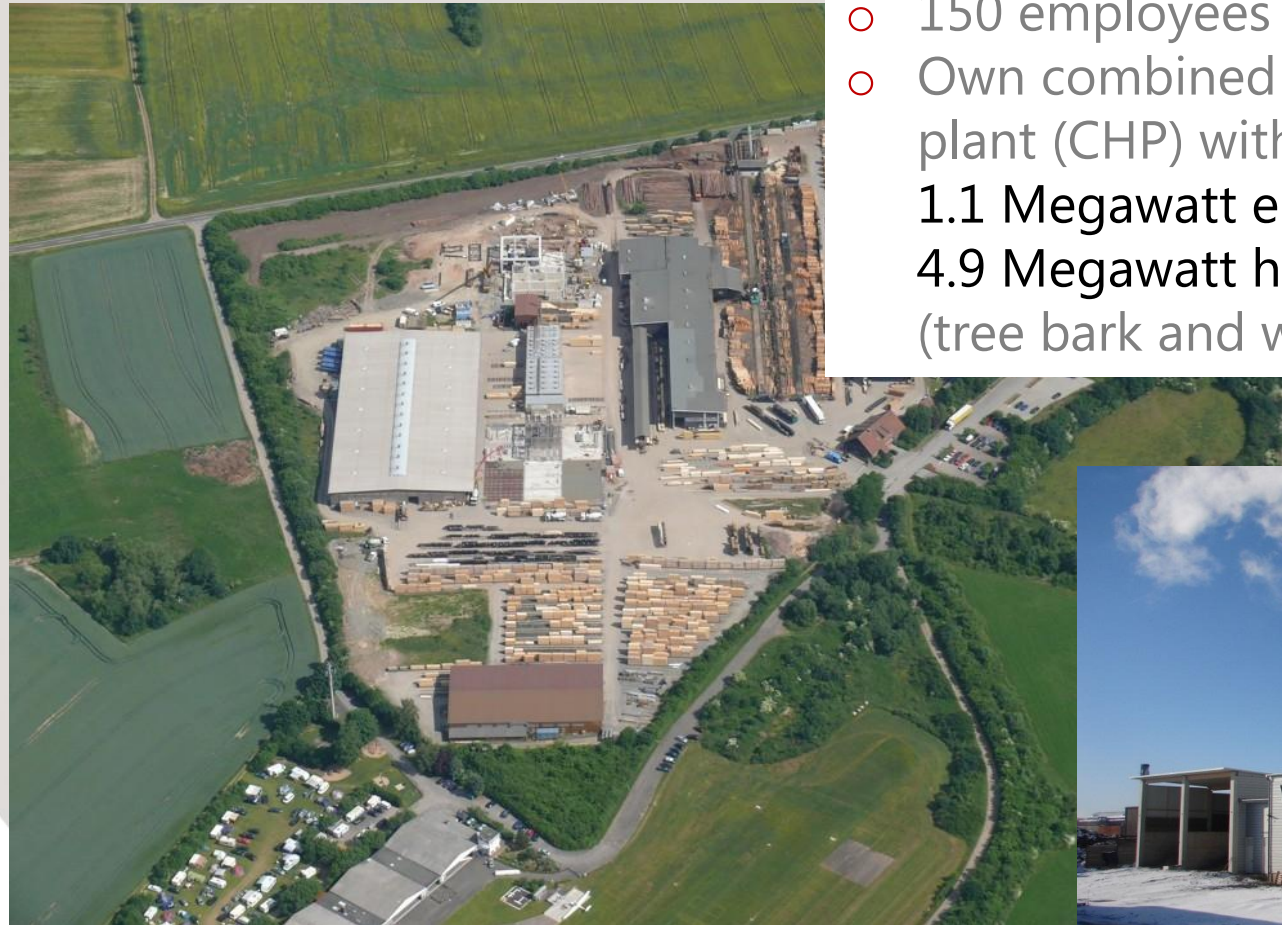
Ersparnis

Bei einem Ölpreis von 0,71 € wäre die Ersparnis nahe Null.

Haben Sie beim letzten Tanken wirklich nur 0,85 € bezahlt? Probieren Sie den Rechner mit einem höheren Ölpreis!

Ihre persönliche Ersparnis bei einem Heizölverbrauch von 2800 l beträgt 418 € pro Jahr


The power plant of the Holz Schmidt saw mill



- 1 km outside the village
- 150 employees
- Own combined heat and power plant (CHP) with a capacity of 1.1 Megawatt electricity and 4.9 Megawatt heat (tree bark and wood waste)



2009: The idea to use free capacity of the CHP plant of the saw mill came up.

2010: A village meeting and a survey on the willingness to participate was held: 270 out of 360 households: Yes (if it is cheaper than oil).



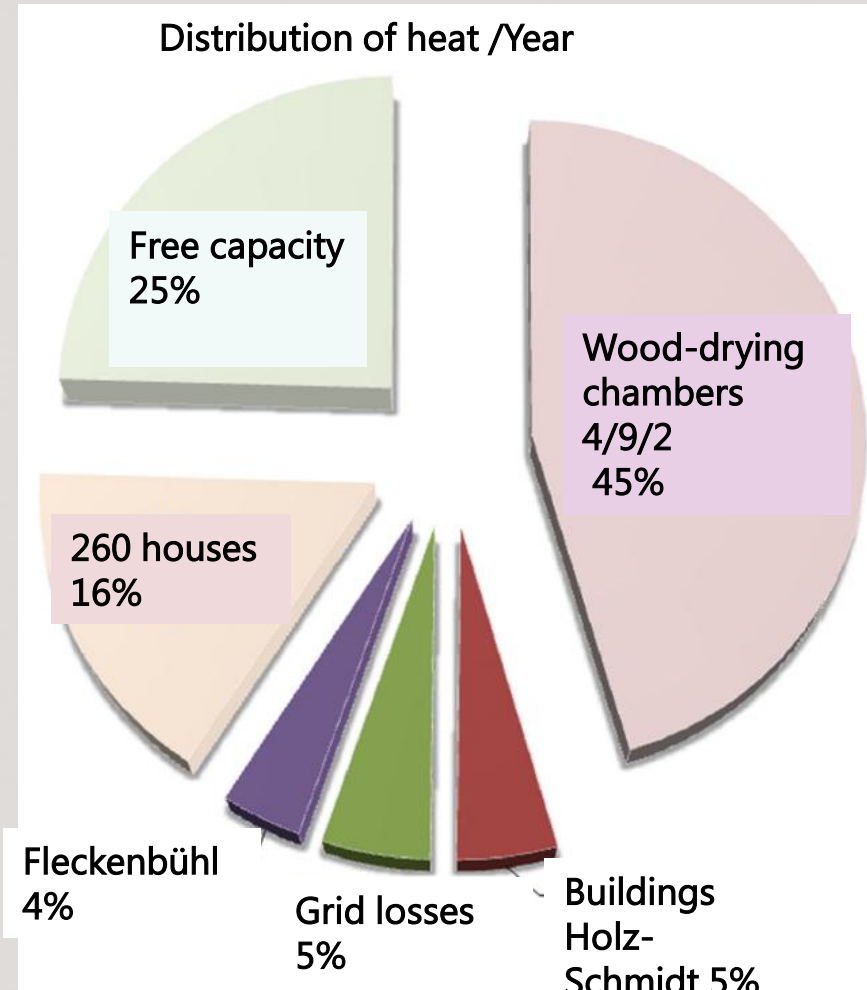
Sept. 2010:

Heat-demand: 6.720 MWh/a
(amount of interested hh: 280 * 24 MWh/a)

Grid losses: 1.000 MWh/a
(15% der Wärmeenergie)

Heat available : 9.100 MWh/a
(25% der Gesamtjahresleistung ca.
40.000 MWh/a)

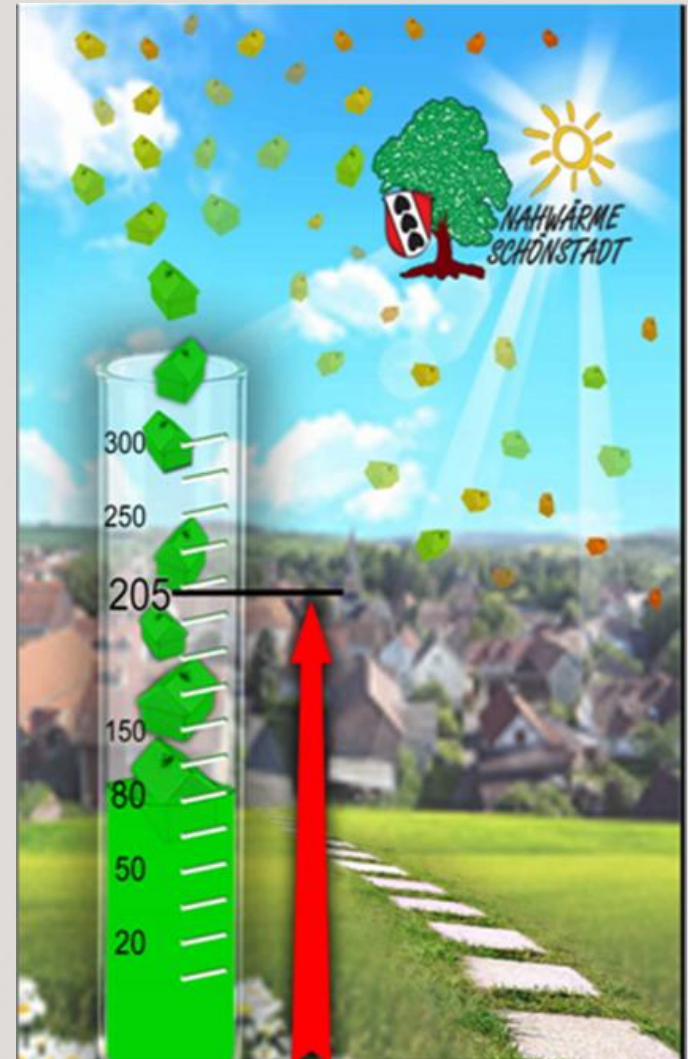
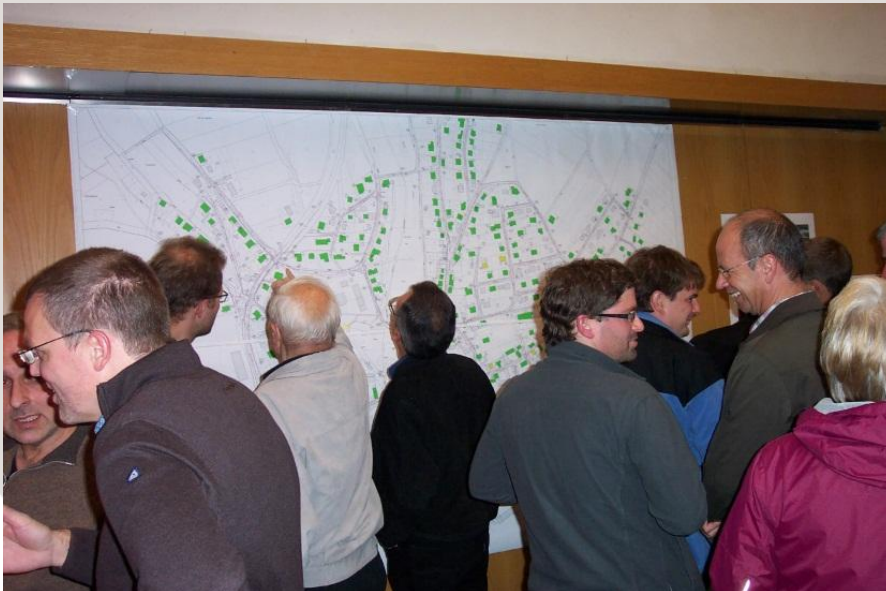
**Result: the power plant can provide
enough heat for the whole village**



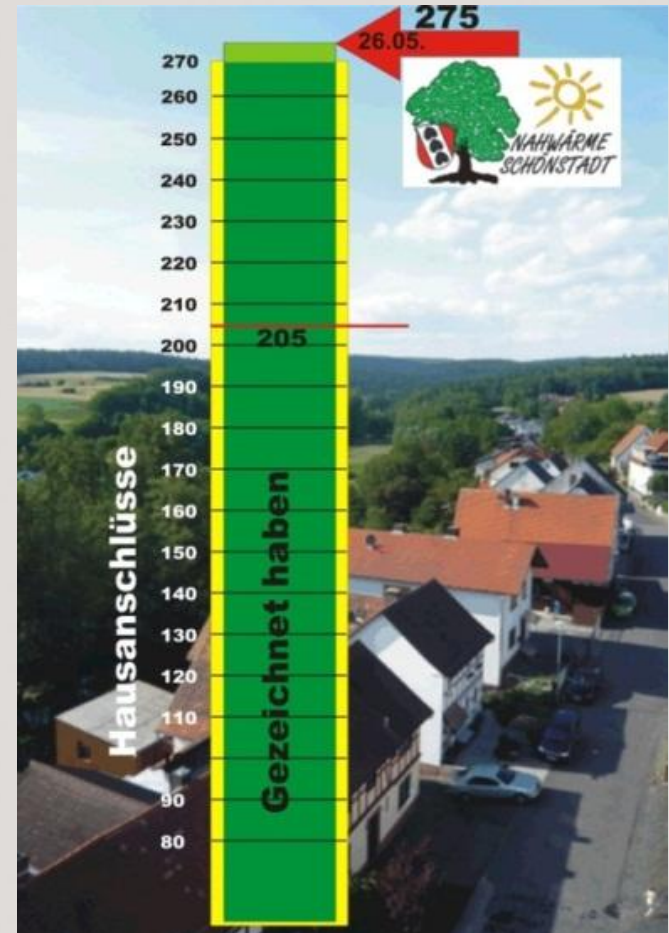
March 2011:

2. village meeting with result from study:

At least 205 households needed to make it possible



- **April 2011:** Inaugural meeting for the cooperative. 153 members sign
- **until May 2011:** 280 householdes signed in.
(incl. the parish council with kindergarten, community hall, fire brigade and county with school)
- **Sep 2011:** Parish council of Coelbe enacts to guarantee for 3 Mio €



Total costs planning and building of the grid:
(287 Households; 13 km length altogether):

6,0 Mio. Euro

Financing:

members of the cooperative: 1,4 Mio. Euro (5.000 € each HH)

government subsidy: 2,1 Mio. Euro (Bafa per m pipe)

loan: 3,5 Mio. Euro (20 years, 2,4%)

6,0 Mio. Euro

Once:

1 part: membership 500 €

9 parts: per household 4.500 €

Ongoing:

basic price: 11,90 € (per month)

energy price: 0,0976 €/ kWh

This equals a price for oil of 0,76 € if everything is taken into account

Building: Milestones

October 2011: request for tenders for the longest cooperative-owned heat-grid in Germany

March 2012: the ground-breaking ceremony

Volker Carle, Mayor of Cölbe
Robert Fischbach, district administrator of Marburg-Biedenkopf,
Lucia Puttrich, Minister of Environment in Hessa



March to October 2012

8 months building time.

Every street in the village gets dug up.

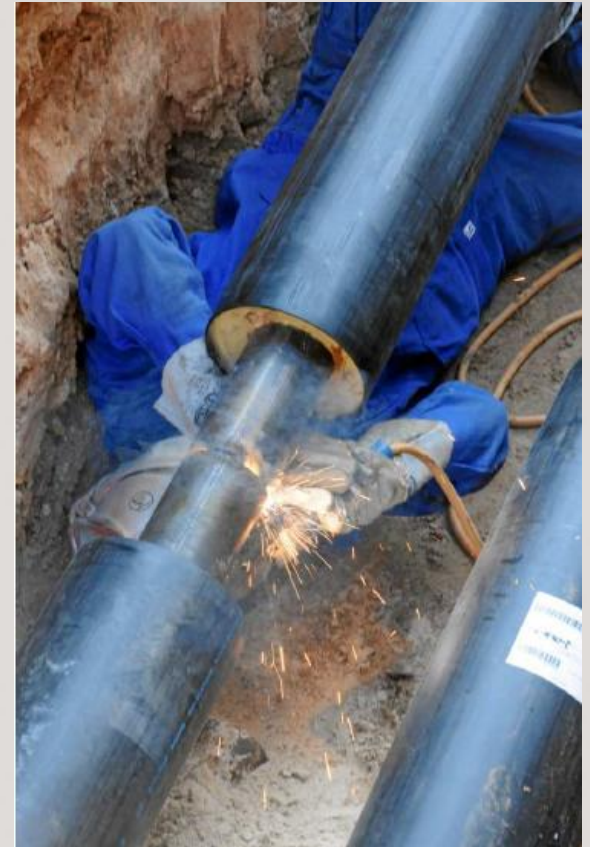
4 building sites at once



- Steel pipes for the backbone
- Flexible pipes for the periphery



- Pipe-jacking and boring beneath major streets
- Welding of the pipes

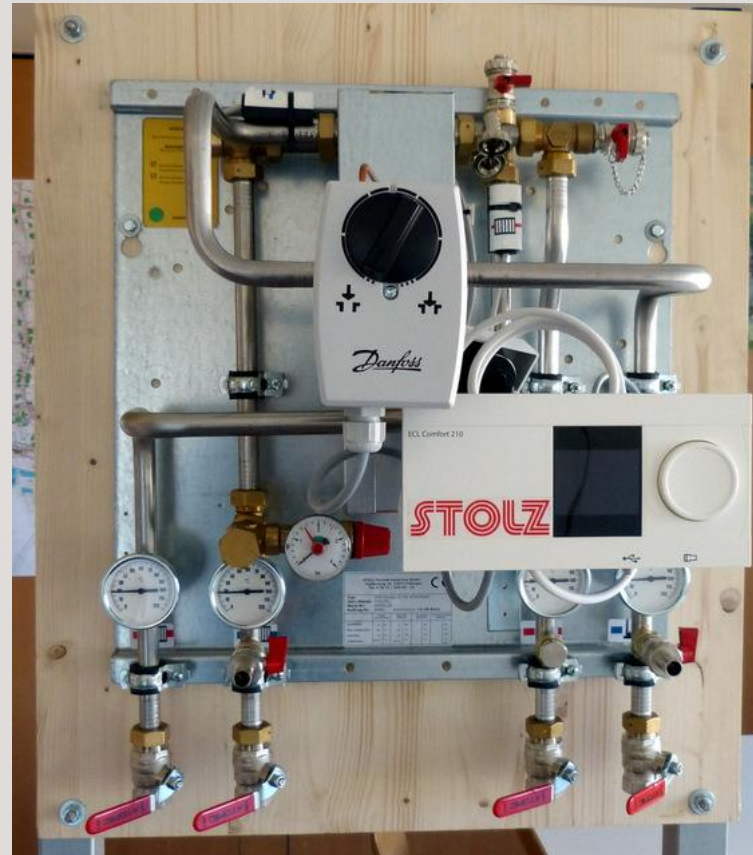




Energie headquarter with backup boiler and pumps, reservoir, controls



Wall breakthrough and transfer station



13. Oktober 2012

Party for the whole village!

2,5 years from idea to working
heat-grid



- Budget and building time met on the point!
- Only one complaint!
- Everything works as planned!

- Experienced action group with time, talent and **good spirits**
- **Good communication** and public relation with all the inhabitants and the community politicians
- **Good example:** Working heat network in a neighbor village
- Clever and engaged engineering contractor
- Fukushima
- and the wish to be independent

„What you wish to kindle in others
must burn within yourself“

Augustinus of Hippo

(354-430, roman philosopher and church teacher)



Thank you for your attention!