
Oberrosphe
A village is getting rid of oil and gas
An Oberrospher Citiziens‘ Project

Agenda

- Oberrosphe
- Initial situation
- How all startet…
- Feasibility study
- Legal form
- Motivation
- Financing
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- Implementation
- Advantages
- After Go-Live
- Technical Details
- Q & A

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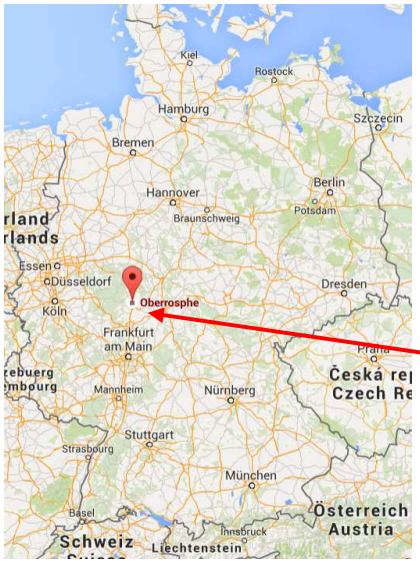
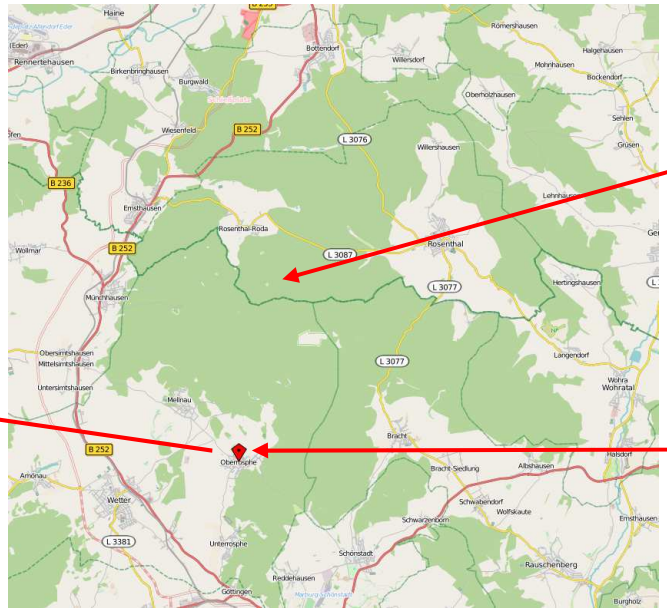
Oberrosphe





Burgwald
(200 km² forest)

Oberrosphe
belongs to
Wetter in Hesse

- 830 inhabitants, 240 houses
- School, kindergarten, church, museum, village hall
- Social life and voluntary work is established. Oberrosphe has 22 clubs
- Since 2007: Bioenergy Village Oberrosphe

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Initial Situation

Abb. 2: Überschwemmungen Deutschland 2006

Abb. 3: Hitzewelle in Deutschland 2006

- Unpredictable energy prices
- Limited resources of fossil fuel
- Climate warming
- Natural catastrophes
- Dependency on oil exporting countries

Initial Situation

Can we change anything?

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Yes we can! With the

Oberrosphe Citizens' Project

Initiated, executed and run by the people of Oberrosphe

How all started …

End of 2005

- Discussion among pastor and forester

2006

- Presentation of idea at village council and village-hall meeting
- Initiation of the project team and working groups
  - Technology
  - Financing
  - Legal form
  - Public relation

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Feasibility Study

Feasibility study

- Executed by an engineering office
- pre-financed (16 000 €) by the city of Wetter and the developing group „Region Burgwald“

- Details
  - Question forms to all house owners
  - Each house (of 240) should have the possibility to be connected
  - Planning of the pipeline network (7 km)
  - Planning of the loacation for the heating plant
- Result:

  The project is profitable with at least 120 houses connected to a wood chips fired heating plant

Legal Form

Why a registered cooperative?

- Every member has the right of co-determination
- Every member has one vote undepending of the numbers of shares
- Cooperative union supports in legal and tax matters
- Not profit oriented, profit is distributed to the members
- No additional payment liability

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Legal Form

Foundation of a cooperative in Feb 2007:
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- 85 members (117 at go-live)
- Management board 3 members
- Supervisor board 9 members

Everybody is working voluntarily

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Legal Form

Cooperative details

- 1 Share: 500 Euro
- At least 12 shares had to be subscribed
- Period of cancellation: 24 months to the end of the business year
- Earliest cancellation 5 years after joining

Motivation

Motivation for joining the cooperative

- Contribution to climate protection
- Beeing energy autarcic
- Keep the money local
- Longer-term saving money

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Motivation

Reasons for not joining the cooperative

- No money (6 000 € to 12 000 € needed)
  - *Building association offered cheap loans*
- Oil heating is very new
  - *Offer to buy heatings up to 15 years old*
- Don‘t trust the project
  - *Face-to-face meetings organized*
- Problems among people

Financing

Investment 3.8 Mio. €

- Own capital 0.7 Mio. €
- Government grant 0.2 Mio. €
- EU grant 0.8 Mio. €
- Dept capital 2.1 Mio. €

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Raw Material

What can be used?

- All trees growing arround
- Waste wood
  - Branches and crowns
  - Cap timber
  - Trees and bushes cut from roadsides

Raw material aquisition

- Various vendors for wood chips
- Green waste gathering place

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Raw Material

Do we have enough wood?

Burgwald forest

- Woodland area: 20 000 ha (200 km²)
- Solid cubic meters per year: 130 000 scm
- Wood chip fired heating plant needs about 2 500 scm

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Implementation

Start of construction: April 2008

- 6 Months implementation time:
  - Pipe net
  - Heating plant
  - Storage hall

Go-live: Oktober 2008

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Advantages

Contribution to climate protection

Yearly reduction of the CO2-emission

saving 300 000 l heating oil => 900 t CO2

Advantages for each household

- No costs for heating maintenance and repairs
- No fees for the chimney sweeper
- No fees for oil tank inspection
- No savings for new oil fired heating boiler (depriciation)
- No dependecies on oil and gas prices
- Cellar space for boiler and oil tank is free
- No noise and oil smell
- Increase the value of the propertiy

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Success factors

- Motivated project team
- Strong leader team driving the people and pushing the project forward
- Feasibility study
- Competent engineering office
- Support of authorities
- Subsidies
- Legal form cooperative
- Volunteers keeping the plant running
- Social cohesion by the project

After Go-Live

Power Generation

- **2008**: 77 kWp Photovoltaic modules on the roofs of the power plant and storage hall

- **2009**: 78 kWp Photovoltaic modules on rented roofs in Oberrosphe

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After Go-Live

- **2012**: A farmer builds a biogas plant for electric power generation with CHPs (combined heat and power) and feeds the waste heat into Oberrosphe‘s heating plant.
  - That halves the usage of wood chips
  - The boiler can be shut down from May to September

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After Go-Live

- **2015**: Foundation of a cooperative „BioEnergieService Marburger Land e G“
  - Cooperation of 7 bioenergy villages
  - Centralized purchase of wood chips
  - Common use of machines and services
  - Disposal of ashes
  - Exchange of experiences
- **2008 to 2015:** increase of members from 117 to 128
- **2016:** 3 more members in planning

Technical Details

Facility

- Area: 10 000 m²
- Volume of
  - Storage hall: about 3000 m³
  - Bunker: about 55 m³

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Technical Details

Heating Plant

- Wood chips fired boiler 850 kW (reduction to 700 kW in 2015)
- Heat recovery from smoke gas 70 kW

- Smoke particle collection by cyclone filter
- Electrostatic filter for fine dust
- Oil boiler for peak load and outages and maintenance
- Buffer storage for 15 000 l of heated water

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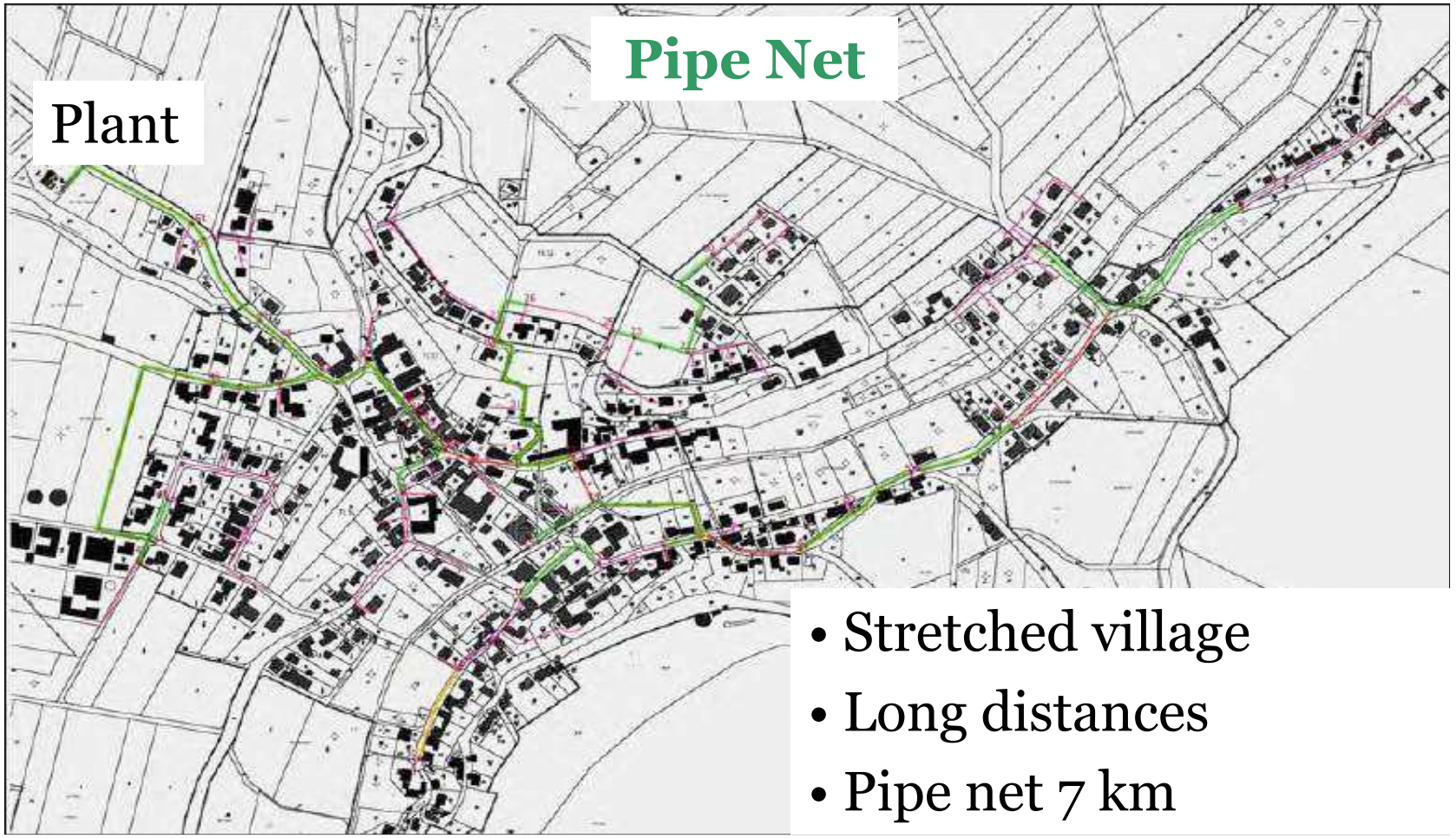
Technical Details



- Stretched village
- Long distances
- Pipe net 7 km

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Technical Details

Hydraulic system:

- Four output regulated pumps pump hot water through the pipe net
- System and net pressure is controled by a pressure stabilizer

Monitoring of the system by internet and mobile

Fire protection: fire water tank 100 000 l

Technical Details

Transfer Station

Each house has a transfer station with

- heat exchanger
- heat meter
- Controler

The transfer station seperates the plant net from the house net

Contact

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