

Oberrosphe

A village is getting rid of oil and gas

The Oberrospher Citizens' Project

Presented by
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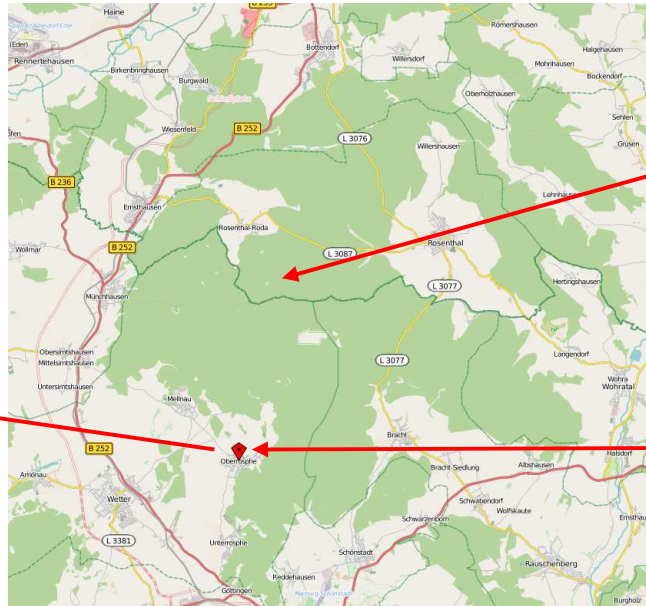
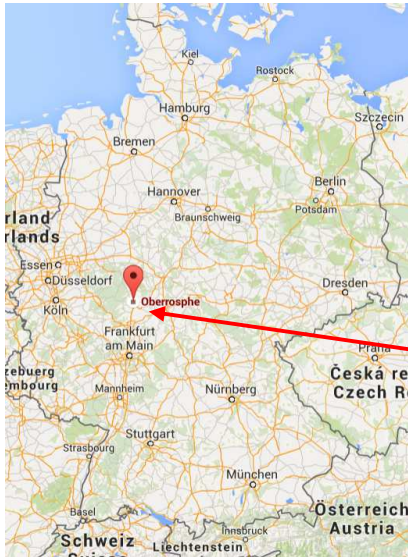


Agenda



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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

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?



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

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 location 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 independent 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

Legal Form



Foundation of a cooperative in Feb 2007:
Bioenergiedorf Oberrosphe eG

- 85 members (117 at go-live)
- Management board 3 members
- Supervisor board 9 members

Everybody is working voluntarily

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
- Being energy autarkic
- Keep the money local
- Longer-term saving money

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. €
- Debt capital 2.1 Mio. €

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

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

Implementation



Start of construction: April 2008

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



Go-live: Oktober 2008

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 (depreciation)
- No dependencies on oil and gas prices
- Cellar space for boiler and oil tank is free
- No noise and oil smell
- Increase the value of the property

Success Factors

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



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



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 2017:** increase of members from 117 to 131
- **2018:** 2 more members in planning

Technical Details



Facility

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



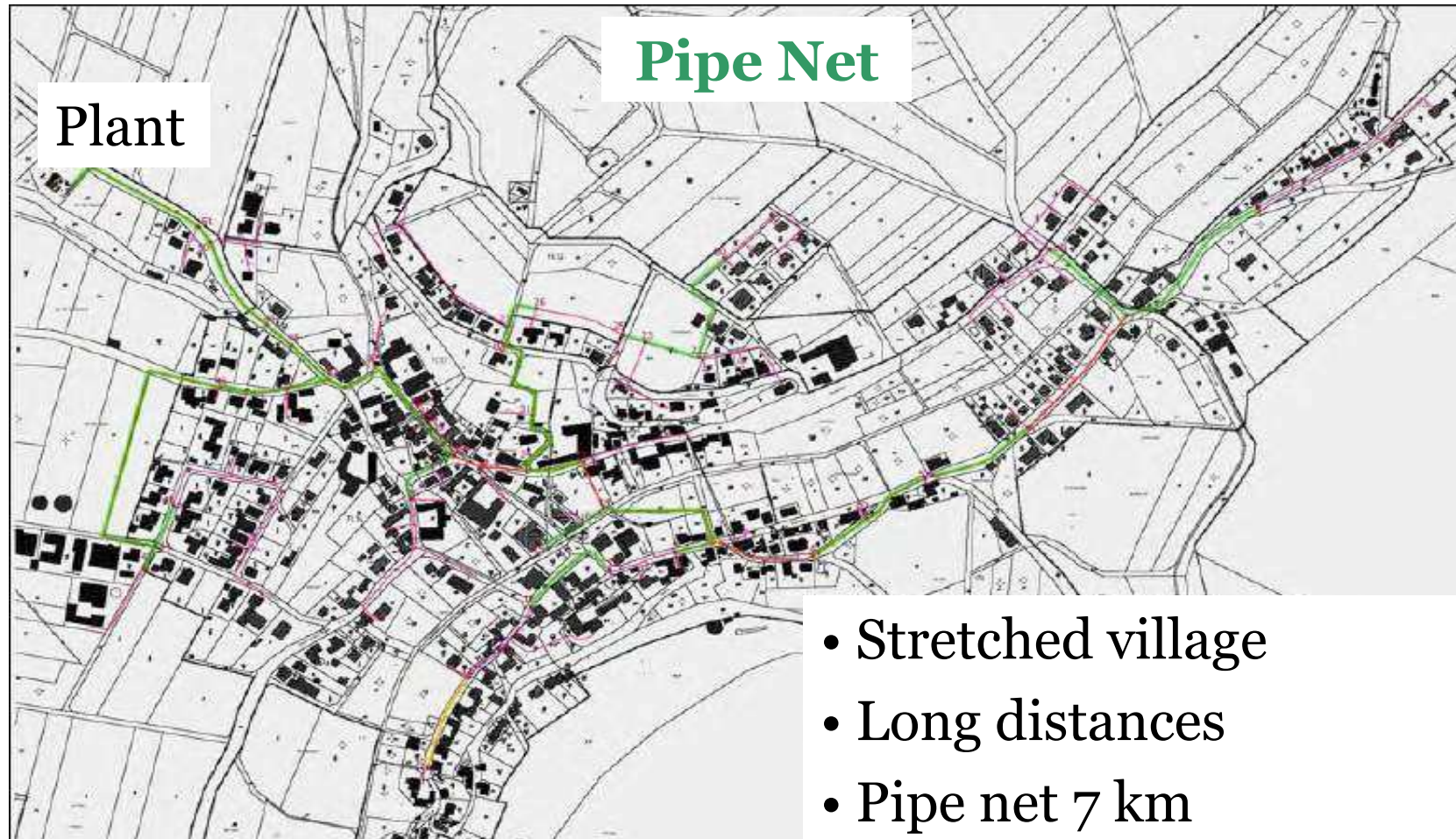
Technical Details



Heating Plant

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

Technical Details



Technical Details



Hydraulic system:

- Four output regulated pumps pump hot water through the pipe net
- System and net pressure is controlled 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
- Controller



The transfer station separates the plant net from the house net

Contact



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