

An aerial photograph of a rural landscape featuring a large wind farm with several turbines, a cluster of solar panels, and a small industrial or agricultural complex with several buildings and parking lots. The land is divided into various agricultural fields and patches of forest. In the foreground, there is a cluster of buildings, possibly a community center or office, surrounded by trees and a parking area.

# Klimakommune Saerbeck

People • Projects • Profit

May 21, 2019



**SAERTEX**  
Reinforcing your ideas!

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achieved through  
reduced weight at full strength  
**Efficiency**

A380 AIRBUS

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SAERTEX: current news  
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Non Crimp Fabrics - NCF  
SAERTEX multiCom

Production  
Material calculator

Our Locations  
Partners

## Saerbeck

- small village in rural environment
- 4.320 miles east of Morris, MN
- 7.200 inhabitants
- increasing population up to 10.000 till 2030
- very good infrastructure (schools, education, active community living)
- 2.400 jobs in local industries

EnviTec Biogas

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Company Biogas Service Own Investment References News & Downloads Investor Relations

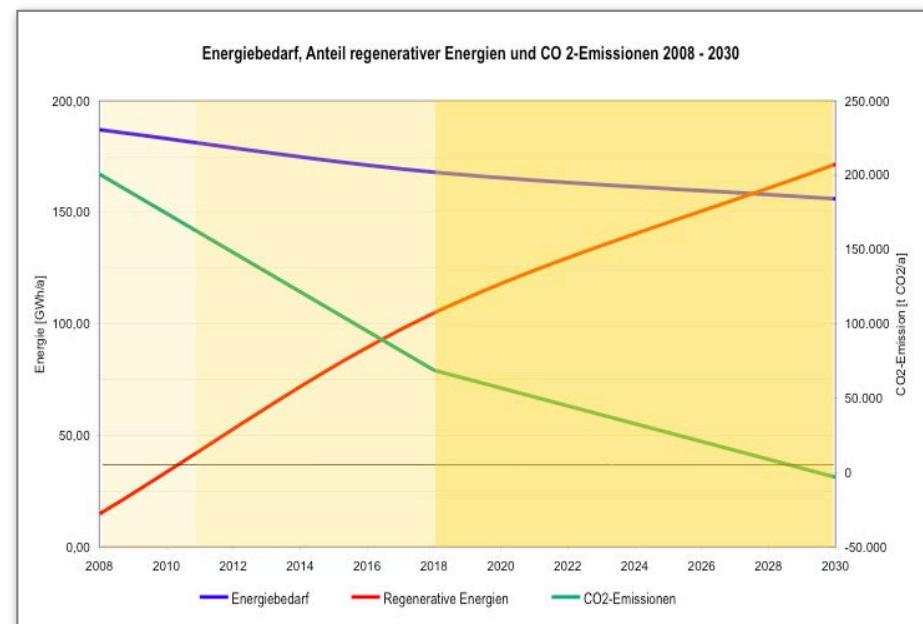
Renewable energy from biogas plants

Current news

## Saerbeck – Climate Municipality of The Future

- 2009 winner of a competition of all communities in the Federal-State of Nordrhein-Westfalen
- IKK: Integrated Concept for Climate Protection and Climate Adaptation
- to reduce the CO2- emissions to a zero level the latest in 2030
- embedding the people of Saerbeck since the beginning

Overall Concept:  
 Climate Municipality Saerbeck<sup>plus</sup> -  
 supply of the whole power with renewable energies  
 till 2030



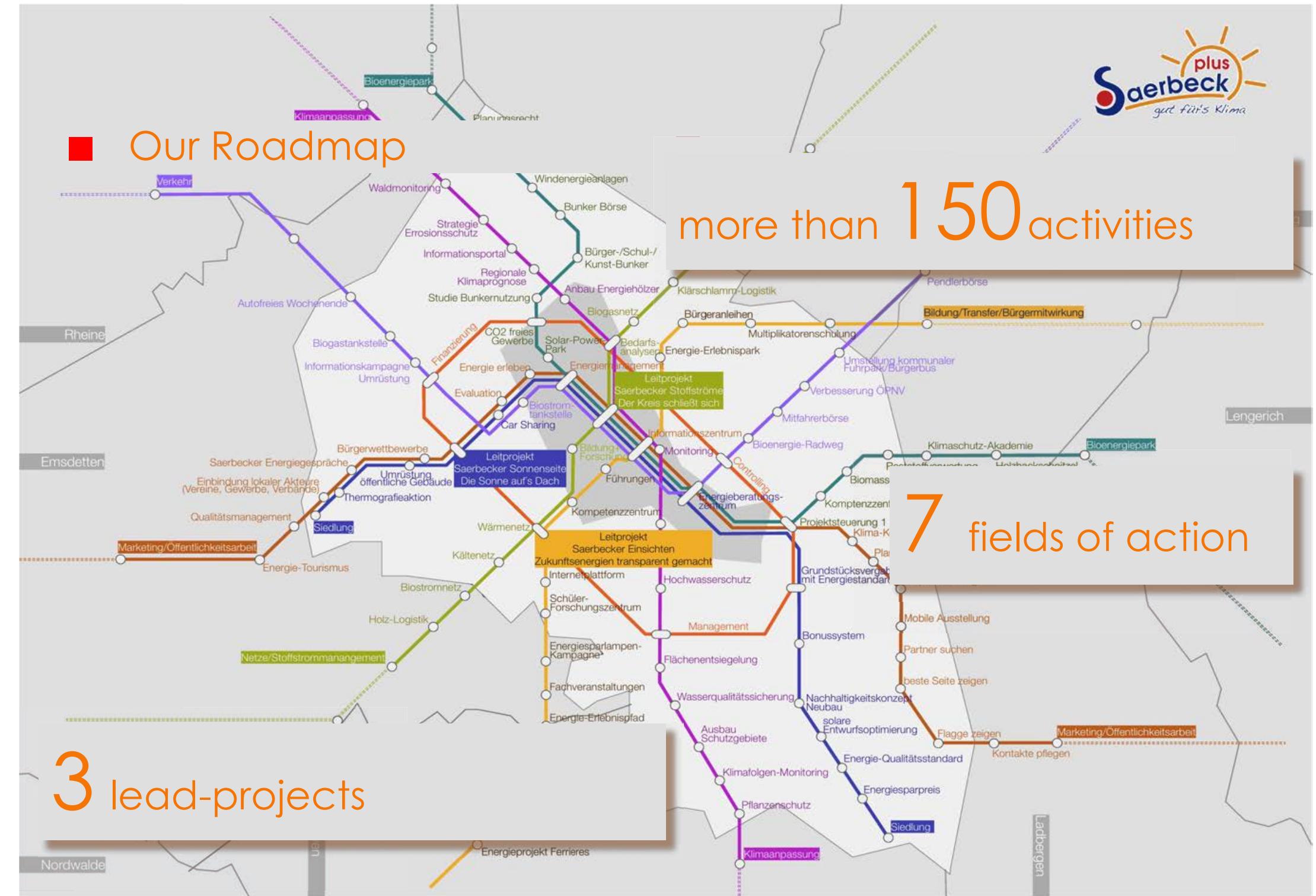
3 charts: **energy demand (blue)** **renewable energies (red)** **CO<sub>2</sub>-emissions (green)**

## Our Roadmap

more than **150** activities

**7** fields of action

**3** lead-projects



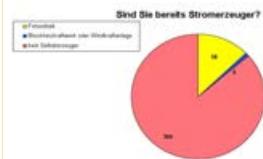


# Lead Project 1: Sunny Side of Saerbeck

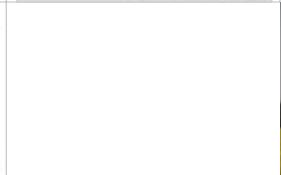
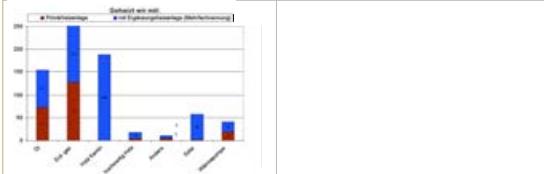
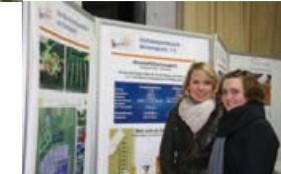
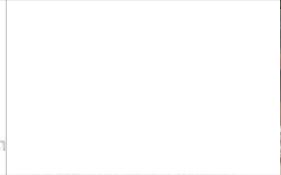
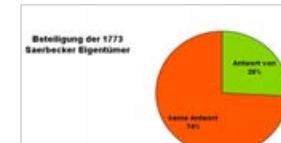
Akteure des Fragebogens

Agenda  
21  
in de Schule

more than 130 activities



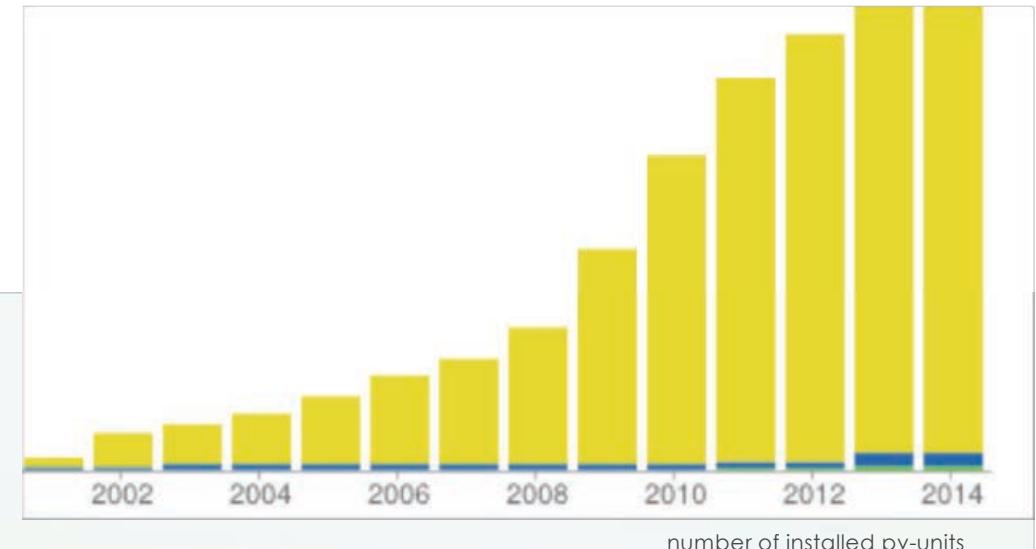
# Involving people!



- Mobilisierung der solaren Nutzungsposizionielle im Gebäudebestand
- Umrüstungsmöglichkeiten für Solarthermie, Photovoltaik, Wärmedämmmaßnahmen, Umrüstung der Primärenergieversorgung
- Kopplung mit Energie-, Förder- und Umsetzungsberatung
- Erarbeitung und Auswertung der Fragebögen durch Gesamtschüler
- Einbindung lokale/regionale Architektenkraft
- Einbindung lokale/regionale Handwerkerschaft
- Einbindung örtlicher Geldinstitute
- Versendung an alle Haushalte

## Lead Project 1:

- 2018: nearly 500 PV units of about 12,0 Mw<sub>peak</sub> are installed (only in the village on the roofs of privat buildungs, farm houses and schools)
- we increased the number of pv units by 3 times within 5 years
- = energy for 2.900 families



A photograph showing several children looking intently at a large industrial machine or piece of equipment. One child in the foreground is wearing a colorful, patterned jacket and has their hands on their cheeks in a surprised or excited expression. Another child is visible behind them, also looking at the machine. The machine itself is metallic and complex, with various pipes and components. The background shows an orange wall and some industrial piping.

Lead Project 2:  
Saerbecker Insight  
Making future energies transparent!

## ■ Lead Project: Central Heating Unit for community buildings based on wooden pellets

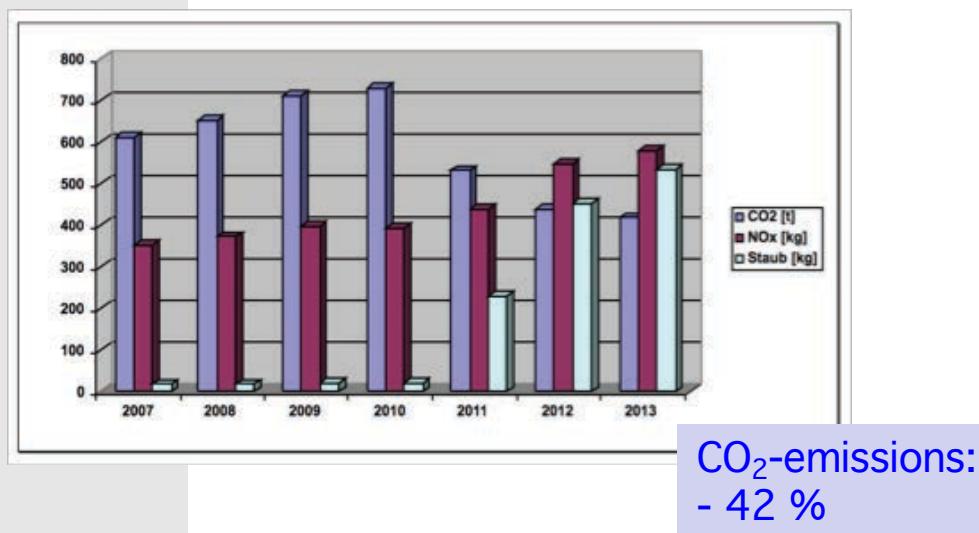
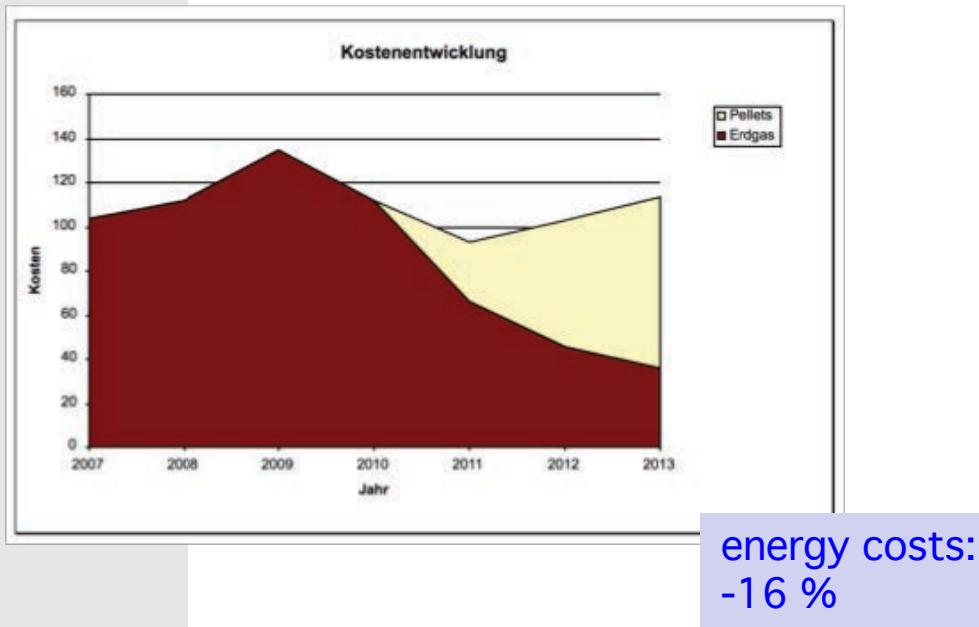
- central heating feeded with wood (pellets) in 2010
- substitution of the former gas maintainance
- local heat-network length of about 700 m in 2 sections (2010, 2013)
- supply of 2 schools, several sport facilities, a kindergarten



## Evaluation

Wir save

- energy (from 1.650 to 850 kW)
- money (50.000 €)
- CO<sub>2</sub> (420 tons/y)



## ■ The Energy-Experience Path

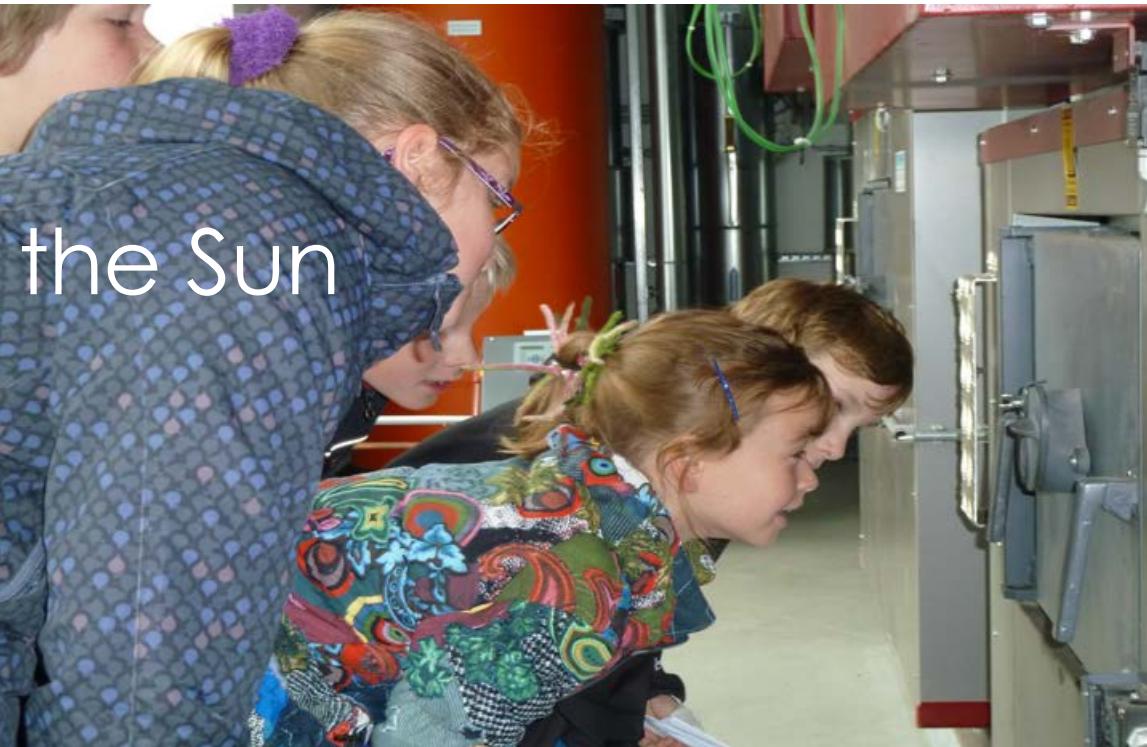
- to explain the global climate change
- 10 POI's (glassy sidewalk, e-power station for pedelecs, poster of lots of paintings of all the pupils of the elementary school)
- to give examples for everyone to participate in saving energy, in using renewable energies for heating and lighting
- presentation for non-experts (to inform, to make think about)
- embedding all acting people along the path



## ■ Education: The Energy-Experience-Path



# School Projects: e.g. muffins cooked by the Sun



# School Projects: PV Plant



3190 E

kW  
Students coming from Fukushima



kWh = Energy.

and Minnesota



# Adult Education

## since 2009



# From Ammunition Camp to Bioenergyparc

## 2009

## 2013



## The Role of Local Investments

- total invest of more than 70 Mio. € in the bioenergy parc
- the returns will be reinvested in local projects (social, educational, climate)
- e.g. the cooperation „Energy for Saerbeck“
  - one of the most powerful investors in the bioenergy pac
  - 400 inhabitants with a total investment of 15 Mio \$ in the bioenergy parc (pv, wind)
  - rate of return 3.5 – 5.5%



MI, 28.03.2018

Startseite > Münsterland > Kreis Steinfurt > 5,75 Prozent Dividende

MÜNSTER ▾ MÜNSTERLAND ▾ NACHRICHTEN ▾ SPORT ▾

**Weltfälische Nachrichten**

Jahreshauptversammlung der Bürgergenossenschaft „Energie für Saerbeck“

**5,75 Prozent Dividende**

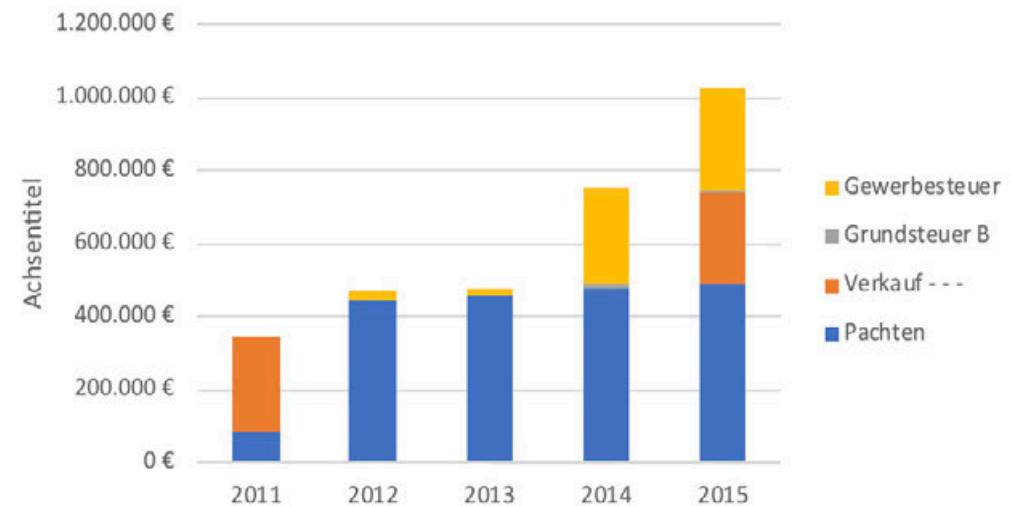
Saerbeck - Die Niedrigzinsphase kann der Bürgergenossenschaft „Energie für Saerbeck“ e.G. offensichtlich nichts anhaben. 5,75 Prozent Dividende werden für das Jahr 2015 ausgezahlt. Das beschloss die Generalversammlung am Freitagabend in der Bürgerscheune einstimmig. Jedes der 384 Genossenschaftsmitglieder erhält 530 Euro. Diese Zahlen gehen aus dem Geschäftsbericht von Vorstand und Aufsichtsrat. Dividende sind die selbst gesetzte Messlatte. Von Alfred Riese

# The Role of Investments by the City

- income by the own wind turbine, rent and leasing revenues, taxes:  
 =  
 6 - 8% of the yearly budget of the city of Saerbeck (without secondary effects)



Einnahmen Bioenergiepark absolut  
2011-2015



Development of Rental and Leasing Income 2010 - 2015



## ■ The Role of the City as a Player Bioenergieparc-Management „The city keeps on the hat!“

- city remains owner of the land
- only rentals and leasehold
- development and management by an own company
- city benefits from an own wind turbine
- new projects

## ■ Indirect Effects

- No more export of money (4 Mio €)
- Tourism (100.000 visitors)
- Support of local businesses (75%)
- New Jobs in Renewable Energies (80)
- Jobs for People with Disabilities (35)

Mittelbare Wertschöpfung	Inhaltliche Konkretisierung	Vorteile für die Gemeinde
Vermeidung von Kapitalexport durch Energieimport	Kapitalexportvermeidung von bis zu 3.977.085,84 € im Gemeindegebiet möglich	Mehrertrag für den Gemeindehaushalt von bis zu 80.000,00 € - 90.000,00 €
Generierung von Tourismus	Entgegenwirkung des negativen Trends; Entstehung umweltökonomischer Tourismus	Seit Eröffnung 50.000 Besucher; Mehrertrag für lokale Gastronomie und für das Beherbergungsgewerbe sorgt für erhöhte Gewerbesteuerzahlung
Gemeindeimage	Klimakommune als Alleinstellungsmerkmal; Modellcharakter	Zahlreiche Preis; Partnerschaften; mehr Touristen
Auftragsvergabe	Regionale Vergabe wird erstrebzt; ca. 75% werden regional vergeben	Mehrertrag der regionalen Unternehmen erhöht Gewerbesteuerzahlung
Arbeitsplätze	Bis zu 80 Plätze neugeschaffen oder verlagert	Mehrertrag durch Lohnsteuer bis zu 40.000 €
Ausgleichsquote	Behindertenquote von 5% durch Beauftragung der Ledder Werkstätten	Steuerliche Vorteile
Biodünger	Angebot von Biodünger statt Mineraldünger im Raiffeisenmarkt	Mehrertrag Raiffeisen führt wieder zu mehr Gewerbesteuer

Tabelle Nr. 7: Zusammenfassung der mittelbaren Wertschöpfung

aus: M. Schulze Birk „Projekt Bio-Energie-Park in Saerbeck - kritische Analyse der Auswirkungen auf den Haushalt einer kleinen Kommune unter besonderer Berücksichtigung der unmittelbaren und mittelbaren Wertschöpfung in der Region“

# SolarPowerParc

- using the bunker walls for the installation of PV (2012)
- capacity of  $5,7 \text{ Mw}_{\text{peak}}$  (= energy need of 1700 households)
- owner/investment by the local Cooperative



## ■ Energy from Biomass-Plants

- energetic use and material utilisation (mass flow management of biomass input and output)
- 1 biogas plant in 2011 (SaerGAS, 1MW<sub>el</sub>)
- owned by local farmers
- 1 composting plant:
- fermentation of all biological waste of the Kreis (= County) Steinfurt, 45.000 tons /year



## ■ 7 Wind Turbines

- 3 Megawatt each (3.000.000 kW)
- height: 199,5 meters  
hub height: 149 meters  
diameter of the rotor: 101 meters
- output projection: 6 Mio kWh/y
- real production 1rst year: 7.2 Mio kWh
- Windpool Saerbeck



# Biodiversity





Space for New Nature





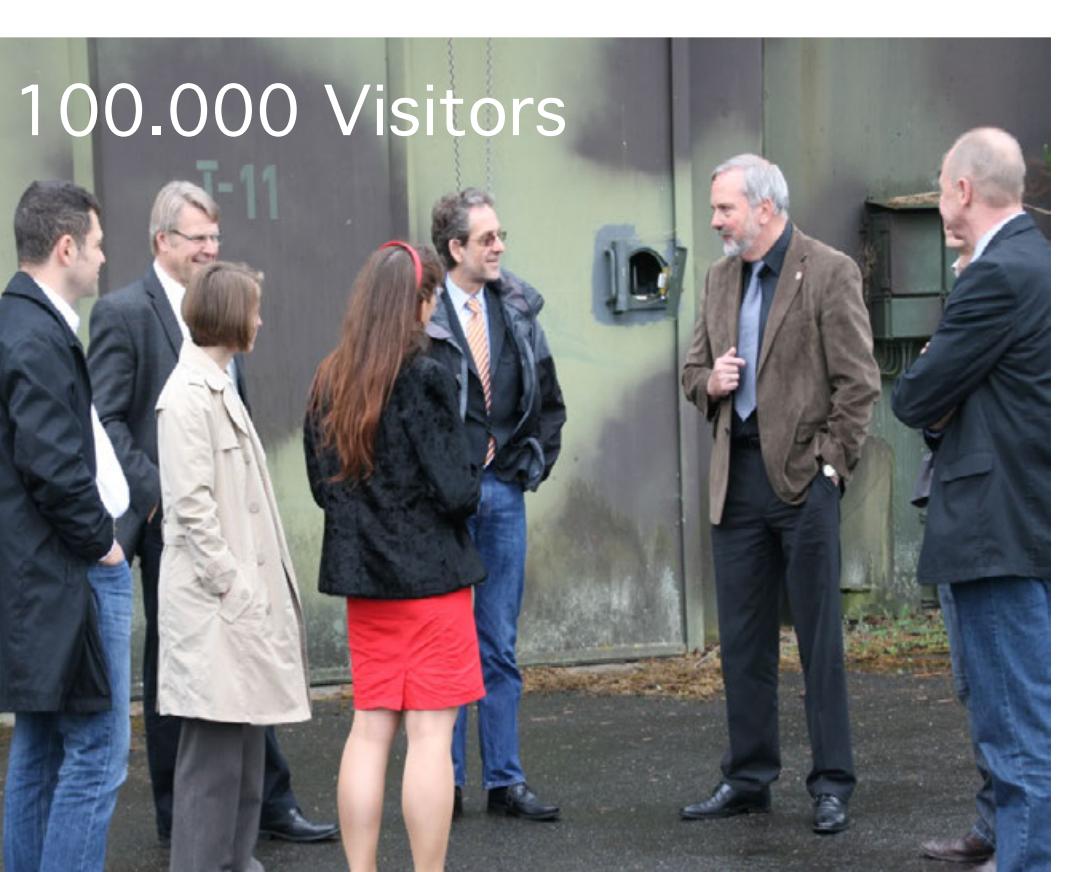
- 4 teachers
- learning stations for rnewable energies
- practical work and investiating

**S**achsenkreis  
aroundabout 60 classes/year = more than  
2.000 students  
LERNSTANDORT BIOENERGIEPARK

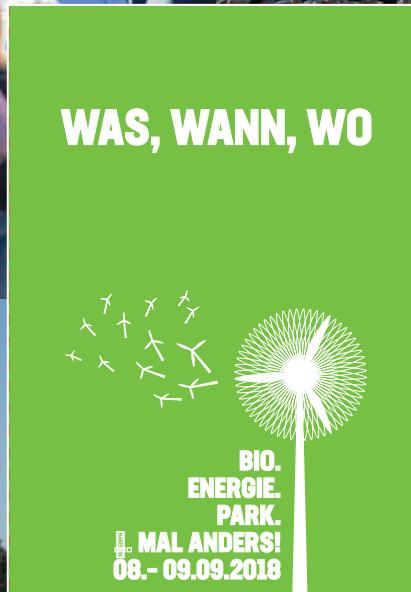
- improving our work by research projects



100.000 Visitors



# 30.000 on September 8 and 9 2018





COP 23



Stipendiaten Humboldt-Foundation



Delegation from Africa



Members of the Japanese Parliament

coming from ...



# International Climate Protection Cooperations

## Shinchi, Fukushima

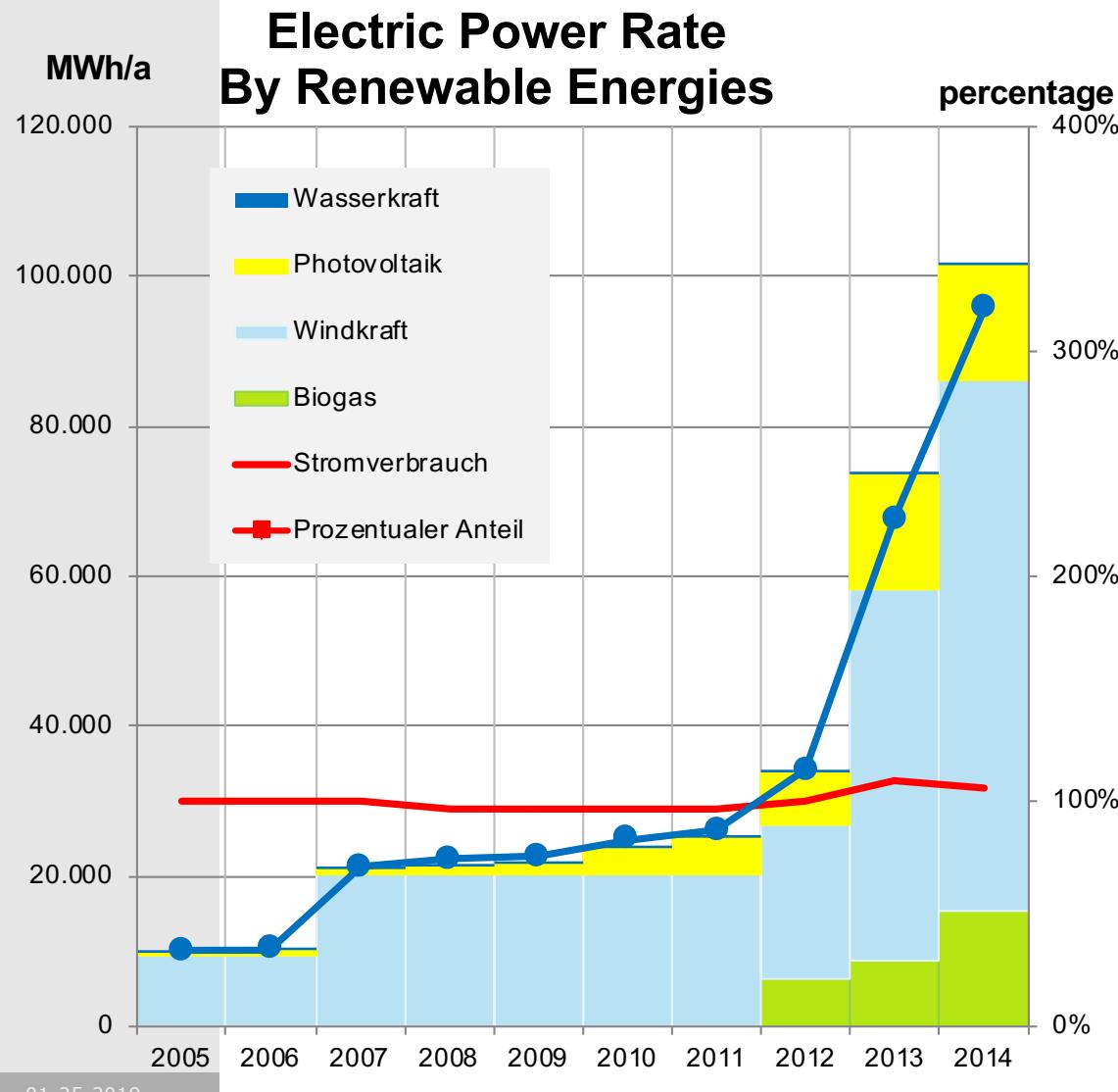


# International Climate Protection Cooperations

## Morris, USA



## ■ Renewables increase.....



- we reached our aim of self-producing our energy on base of renewable energies already in 2013 and not in 2030
- the production of renewable energies in the biornenergyparc will reach nearly the double of the local need (210%)
- we decreased the level of GHG-emission from 9,6 to per inhabitant (2010) to 5,5 to/inhabitant (2014)

and this will not be the end .....

next project: Bürgerwindpark Sinnen 2018  
= 5450% renewables

## ■ What still needs to be done:

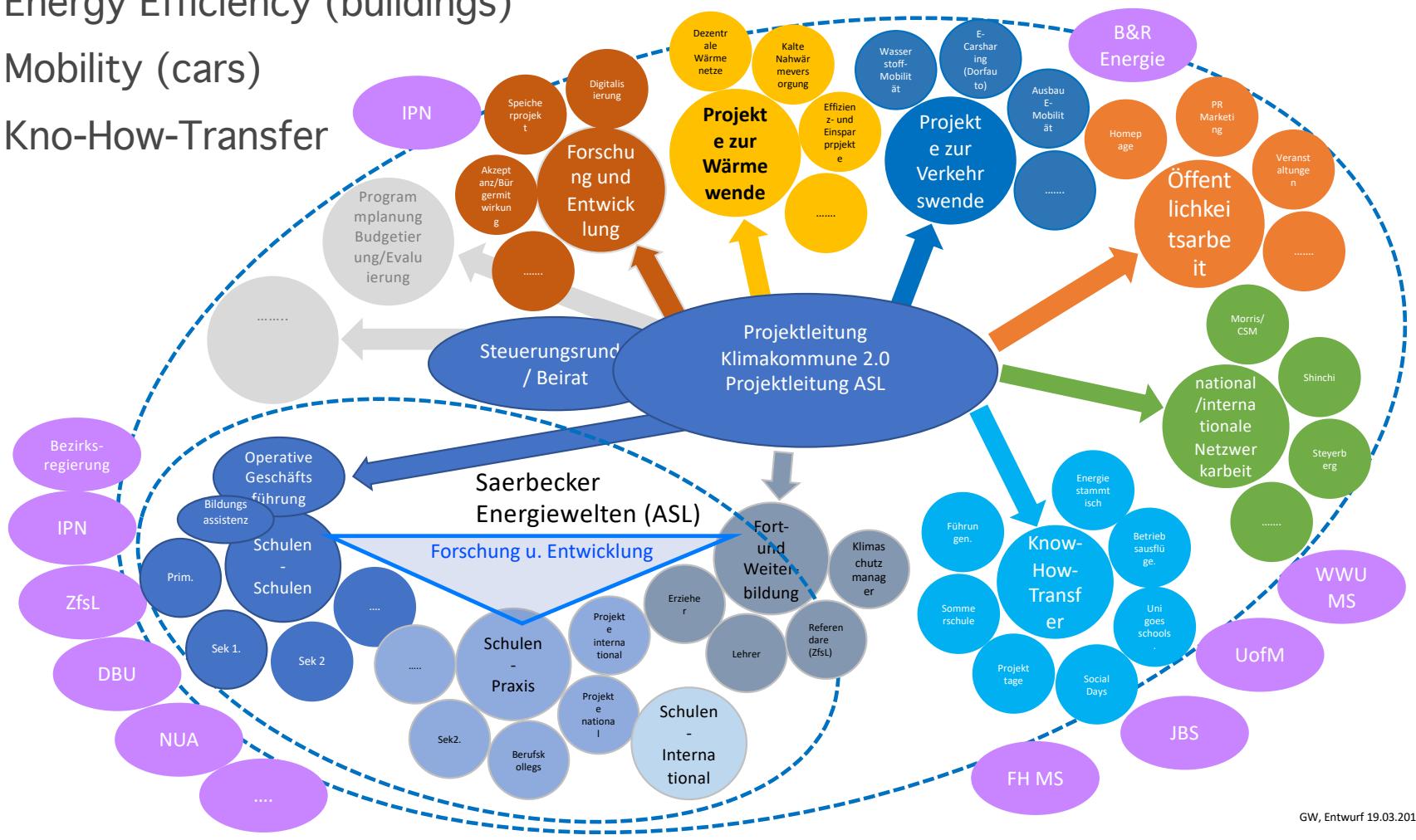
### Klimakommune 2.0: Real Lab Energy Turnaround

Priorities:

Energy Efficiency (buildings)

Mobility (cars)

Kno-How-Transfer





Thank You Very Much  
For Your Attention!