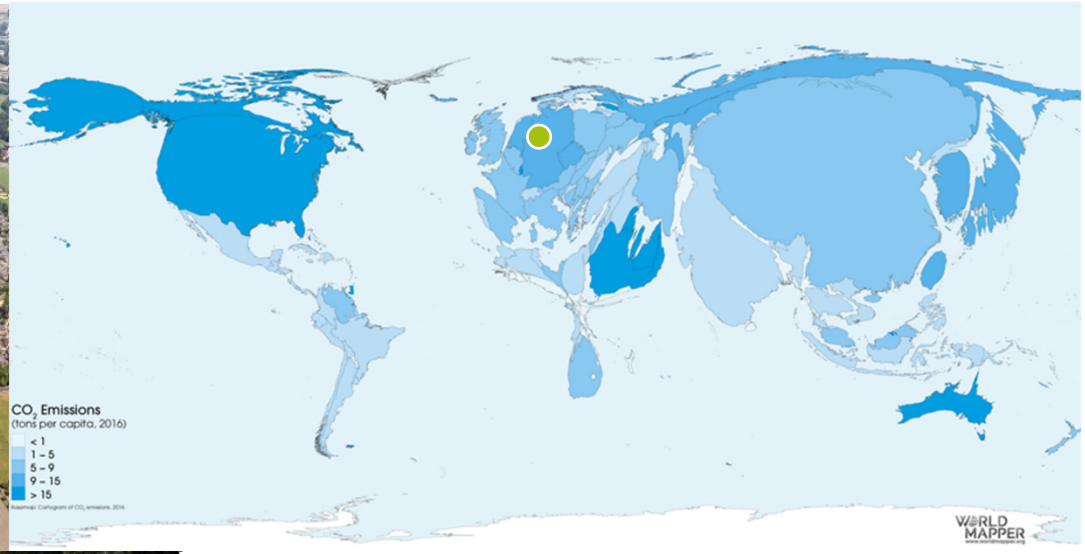
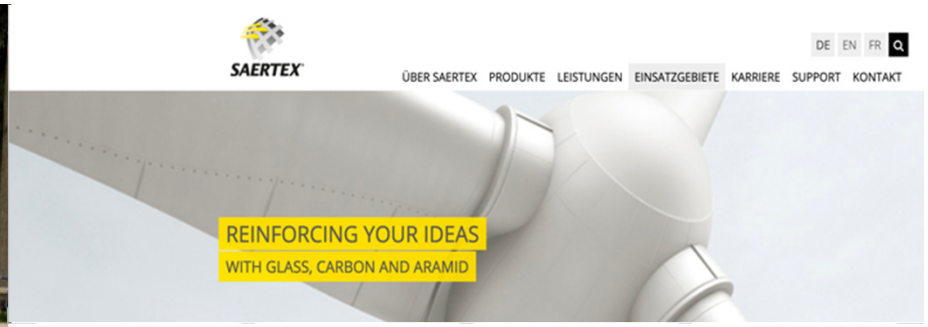
Klimakommune Saerbeck: A Community on it´s Way to a Sustainable Future!

Saerbeck

- small village in rural environment
- 7.200 inhabitants
- increasing poulation till 2030
- very good infrastructure (schools, education, active commmunity living)
- 2.400 jobs in local industries





Klimakommune Saerbeck

- 2009: Integrated climate protection and adaptation concept
- 150 projects from small scale to large scale
- most important instrument:

  - involving all the people from the beginning (=7,200) by

  - creating climate awareness (= education)

  - realizing own climate protection projects (e.g. PV on the roof)

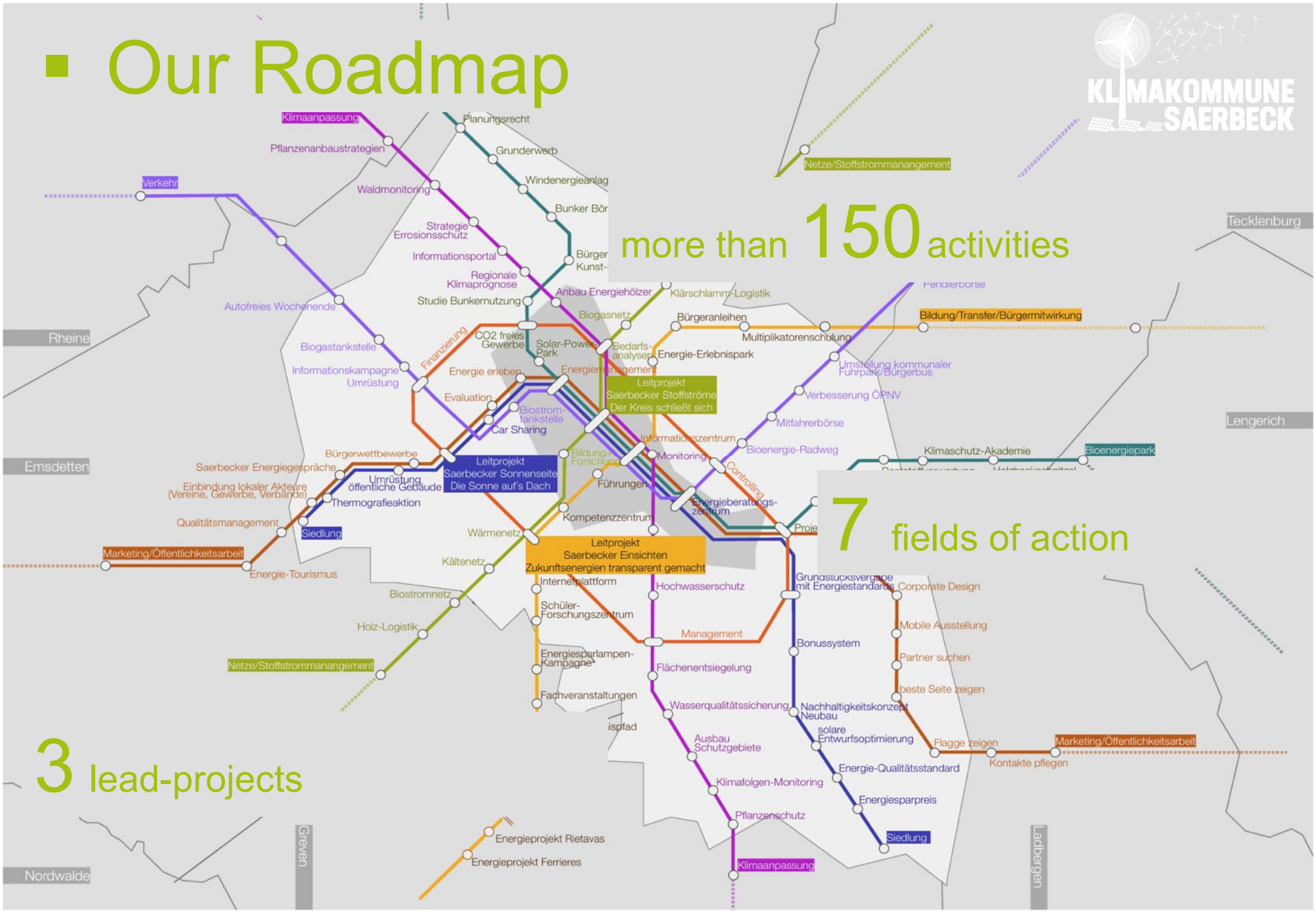
  - earning money (e.g. bioenergy park)

TARGET
Self Made Energy Supply with Renewable Energies by 2030

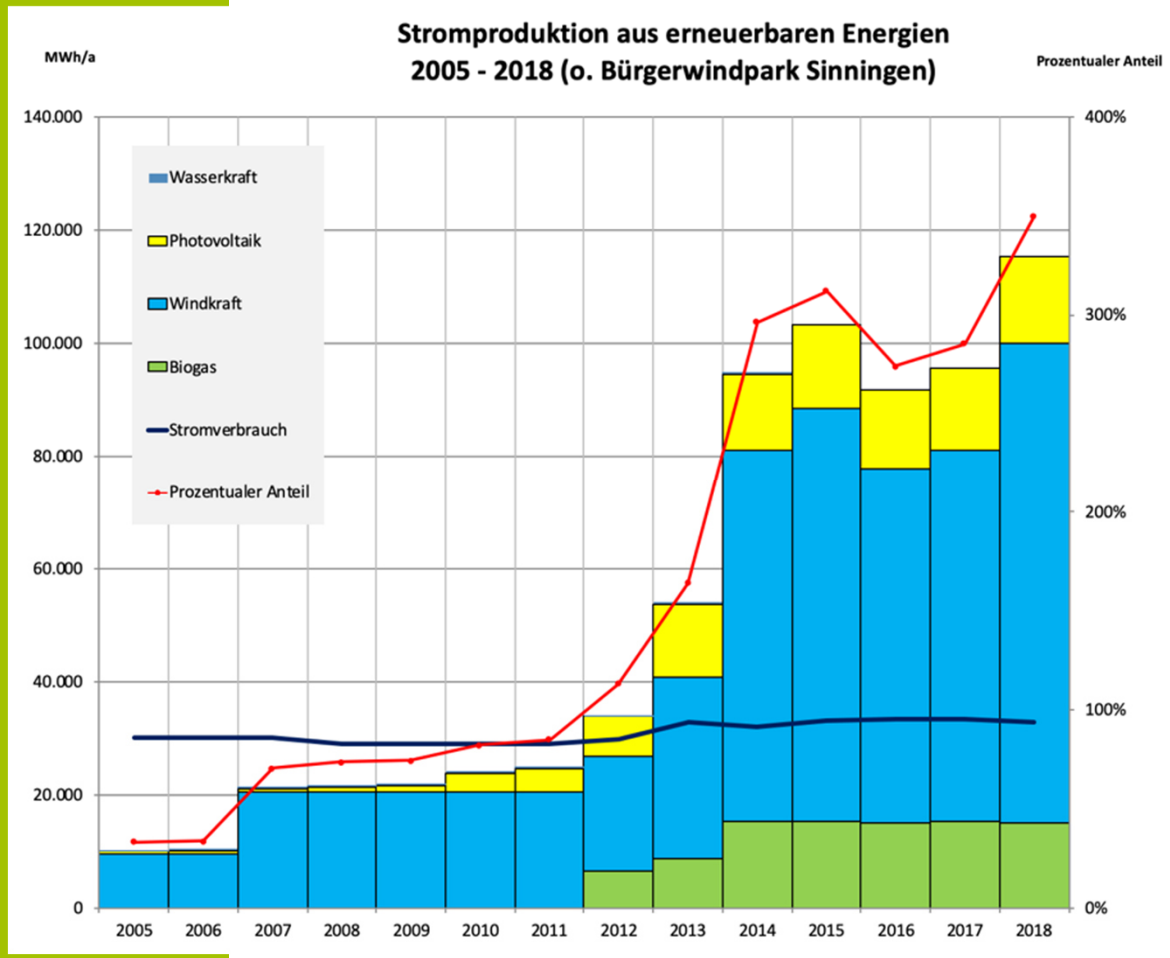
3 „Fieberkurven“:

- **Entwicklung Energiebedarf (blau)**
- **Ausbau regenerative Energien (rot)**
- Reduzierung der CO2-Emissionen (grün)

Our Roadmap


KLIMAKOMMUNE SAERBECK
more than 150 activities
7 fields of action
3 lead-projects
Klimaanpassung
Planungsrecht
Pflanzenanbaustrategien
Grunderwerb
Verkehr
Waldmonitoring
Windenergieanlag
Bunker Bör
Strategie Errosionsschutz
Informationsportal
Bürger Kunst-
Regionale Klimaprognose
Studie Bunkernutzung
Anbau Energiehölzer
Klärschlamm-Logistik
Autofreies Wochenende
Biogasnetz
Bürgeranleihen
Multiplikatorenschulung
Bildung/Transfer/Bürgermitwirkung
Rheine
Biogastankstelle
Finanzierung
CO2 freies Gewerbe
Solar-Power-Park
Bedarfs-analyser
Energie-Erlebnispark
Informationskampagne Umrüstung
Energie erleben
Energiemanagement
Umstellung kommunaler Fuhrpark/Bürgerbus
Leitprojekt Saerbecker Stoffströme Der Kreis schließt sich
Evaluation
Biostrom-tankstelle
Car Sharing
Verbesserung ÖPNV
Mitfahrerbörse
Tecklenburg
Lengerich
Emsdetten
Bürgerwettbewerbe
Saerbecker Energiegespräche
Leitprojekt Saerbecker Sonnenseite Die Sonne auf's Dach
Bildung+ Forschung
Informationszentrum
Monitoring
Bioenergie-Radweg
Klimaschutz-Akademie
Bioenergiepark
Controlling
Einbindung lokaler Akteure (Vereine, Gewerbe, Verbände)
Umrüstung öffentliche Gebäude
Führungen
Thermografieaktion
Energieberatungs-zentrum
Qualitätsmanagement
Siedlung
Kompetenzzentrum
Wärmenetz
Marketing/Öffentlichkeitsarbeit
Leitprojekt Saerbecker Einsichten Zukunftsenergien transparent gemacht
Kältenetz
Energie-Tourismus
Internetplattform
Hochwasserschutz
Grundstücksvergabe mit Energiestandards
Corporate Design
Biostromnetz
Schüler-Forschungszentrum
Holz-Logistik
Management
Mobile Ausstellung
Bonussystem
Partner suchen
Energiesparlampen-Kampagne
Netze/Stoffstrommanangement
Flächenentsiegelung
beste Seite zeigen
Fachveranstaltungen
Wasserqualitätssicherung
Nachhaltigkeitskonzept Neubau
Ausbau Schutzgebiete
solare Entwurfsoptimierung
Flagge zeigen
Marketing/Öffentlichkeitsarbeit
Kontakte pflegen
Energie-Qualitätsstandard
Klimafolgen-Monitoring
Energiesparpreis
Pflanzenschutz
Siedlung
Energieprojekt Rietavas
Energieprojekt Ferrieres
Klimaanpassung
Nordwalde
Greven
Ladbergen

Where we are at the moment:



- The goal of a bilancial self-sufficiency with renewable energies was achieved at the end of 2013.
- 210 % regenerative electricity is produced in the bioenergy park
- new wind parc project since 2018
- 2020: 450% renewable energies
- **we could reduce the CO_2 emissions from 9.6 to/cap in 2010 to 4.5 to/cap in 2020**

Lead Project 1: Sunny Side of Saerbeck

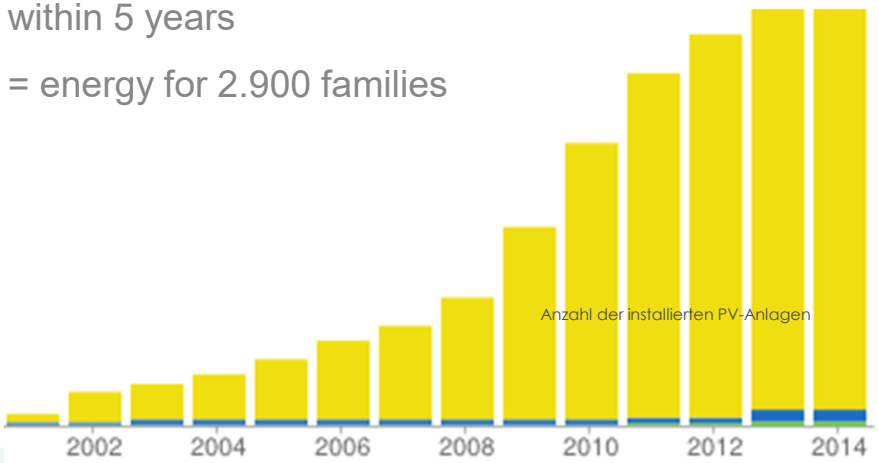
Akteure des Fragebogens

PV Arrays on Roofs

- 2018: nearly 500 PV units of about 12,0 Mw_{peak} are installed
  (privat buildungs, farm houses and schools)

we increased the number of pv units by 3 times within 5 years

= energy for 2.900 families



Lead Project 2:
Saerbecker Insight
Making future energies transparent!

Regeneratives Wärmenetz

- district heating system in operation since 2010
- 2 pellet boilers with 550 kW and 300 kW capacity
- supply of the municipal school and sports centre
- 2nd construction phase 2013
- municipal operator concept and energy management

Leitprojekt 2: Gläserne Heizzentrale

Saving energy is saving money!

- more efficient use of energy (from 1,650 to 850 kW).

- cost savings for budget (50.000 €/y)

- CO_2 savings (420 to/y)

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Energy-Experience-Path

- explainig climate change
- footpath across the center of saerbeck
- 10 POI´s for renewable energies, energy efficiency and consumer behavior (glassy sidewalk, e-power station for pedelecs, poster of lots of paintings of all the pupils of the elementary school)
- giving exemples for everyone to saving energy, using renewable energies for heating and lighting and changing consumer behavior

How it works!

Energie Erlebnispfad Saerbeck

Education: The Energy-Experience-Path

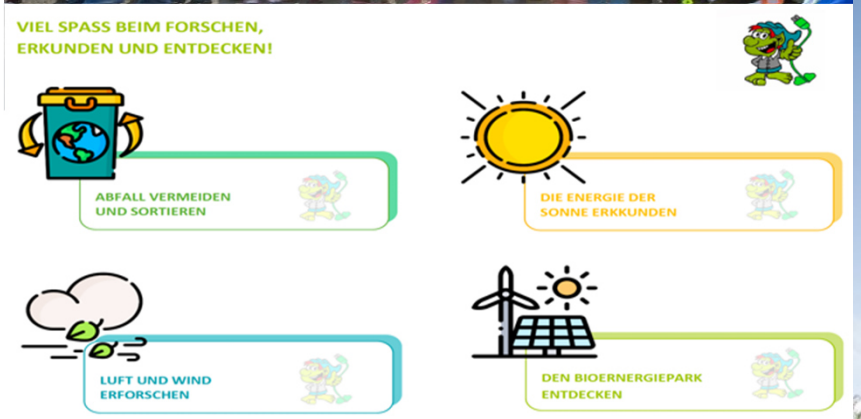
Making renewable energies transparent:

Explaining how it works!

This is very simply done !

Everybody is able to do it!

Projects for Kindergarten-Kids



Experiments for Primary Schools

School Projects, e.g. PV Array

Adult Education since 2009

Leitprojekt 3: Der Bioenergiepark

2009

2020

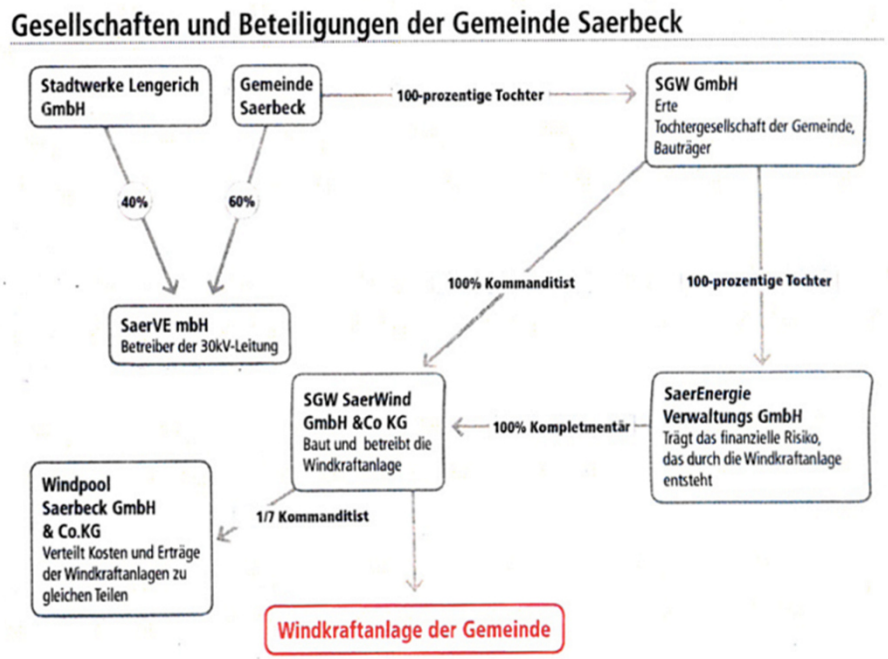
- civil reuse of a former military area
- 400 acres
- purchased by the City of Saerbeck
- mix of renewable energies:

  -wind

  -sun

  - biomass
- 33 MW of renewable power
- 50 Mio € of investments – ALL WITH LOCAL MONEY
- 80 new jobs

Local value added creation and acceptance



- total investment of approx. € 70 million
- the municipality remains the owner of the land

- leasing/leasehold

- all investments have been realized by local and regional actors (local value creation)
- the cooperative Energie für Saerbeck is one of the largest investors in the bioenergy park
- Municipality invested in an own wind turbine
- Municipality has income from the BEP (taxes, revenues rents, etc)

KLIMAKOMMUNE SAERBECK

Energie für Saerbeck

Bringing in People:

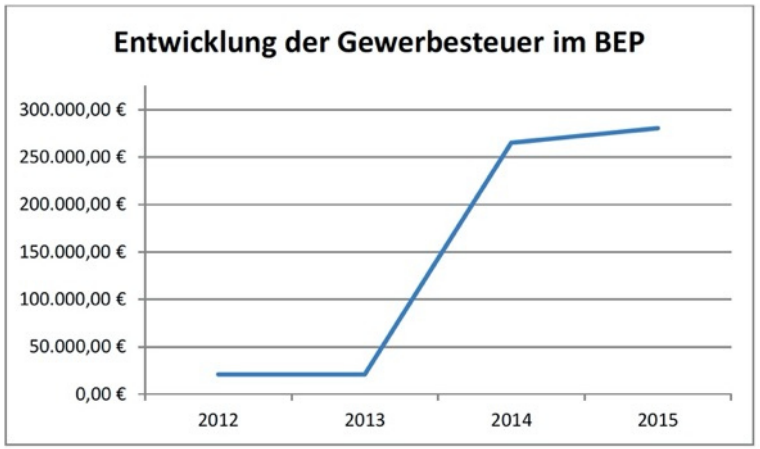
The Role of Local Investments

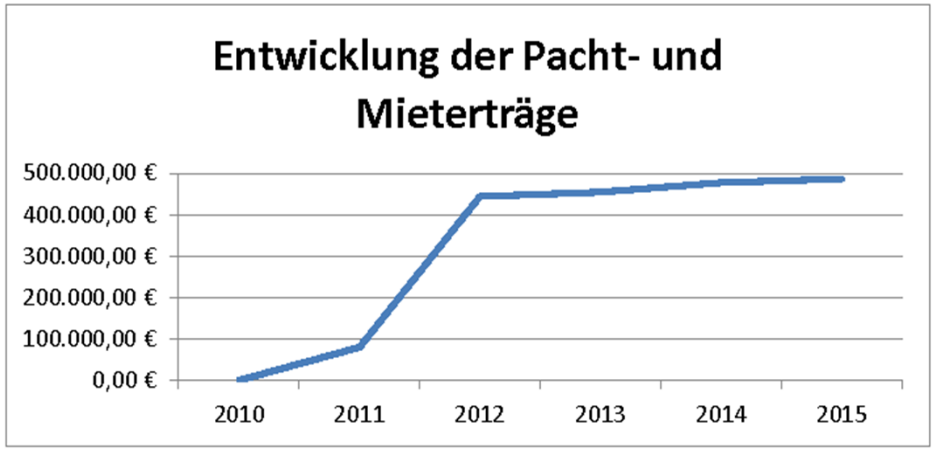
- total invest of more than 70 Mio. € in the bioenergy parc
- 50 Mio. € are coming from locals
- **the returns will be reinvested in local projects (social, educational, climate)**
- e.g. the cooperation „Energy for Saerbeck“

- 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%

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)
  = purchase price ammunition depot
  = 20 years of a guaranteed revenues
- pay-back of own wind turbine after 14 years
- reinvestment in public services (schools, infrastructure, climate protection measures)

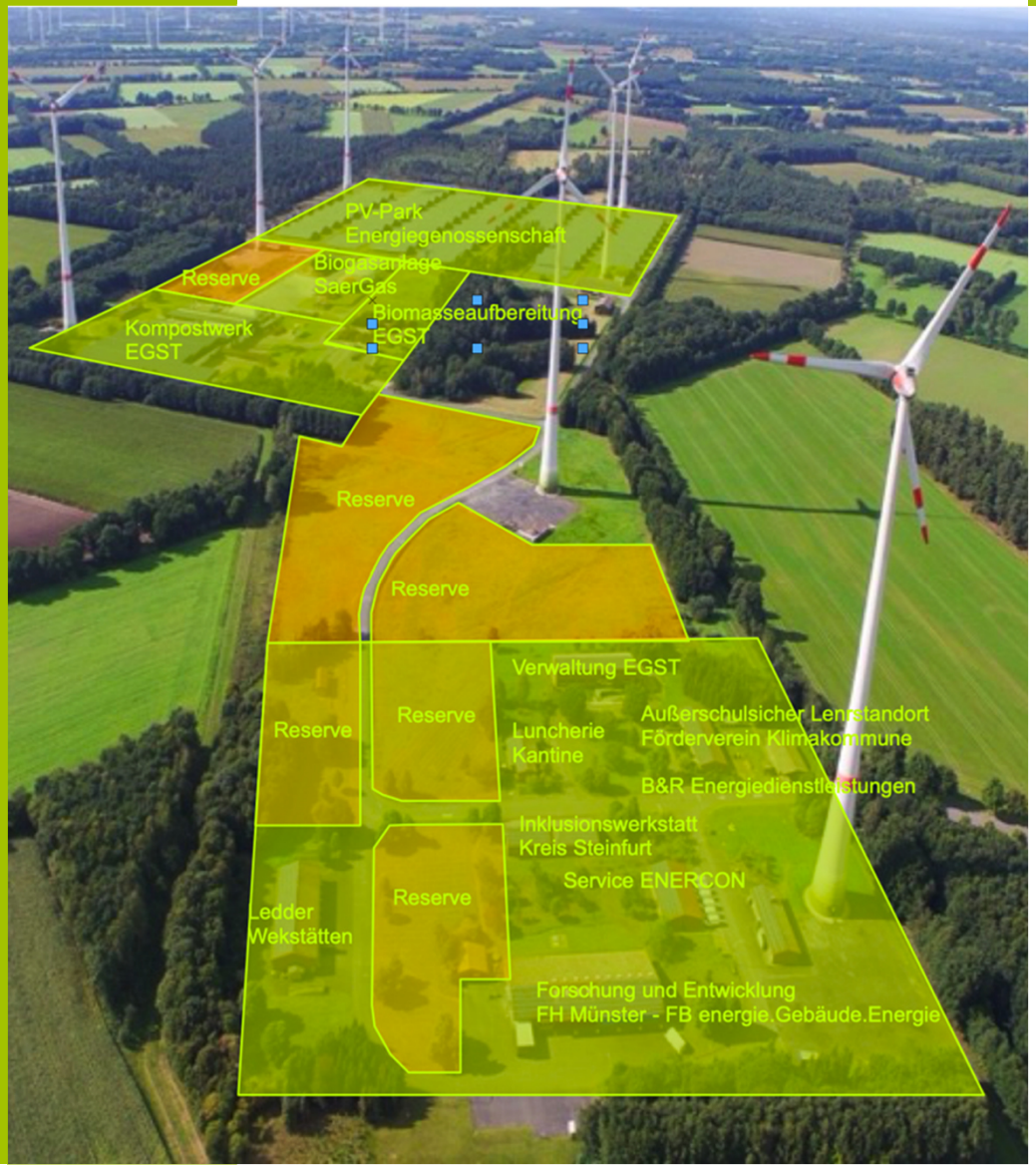




KLIMAKOMMUNE SAERBECK

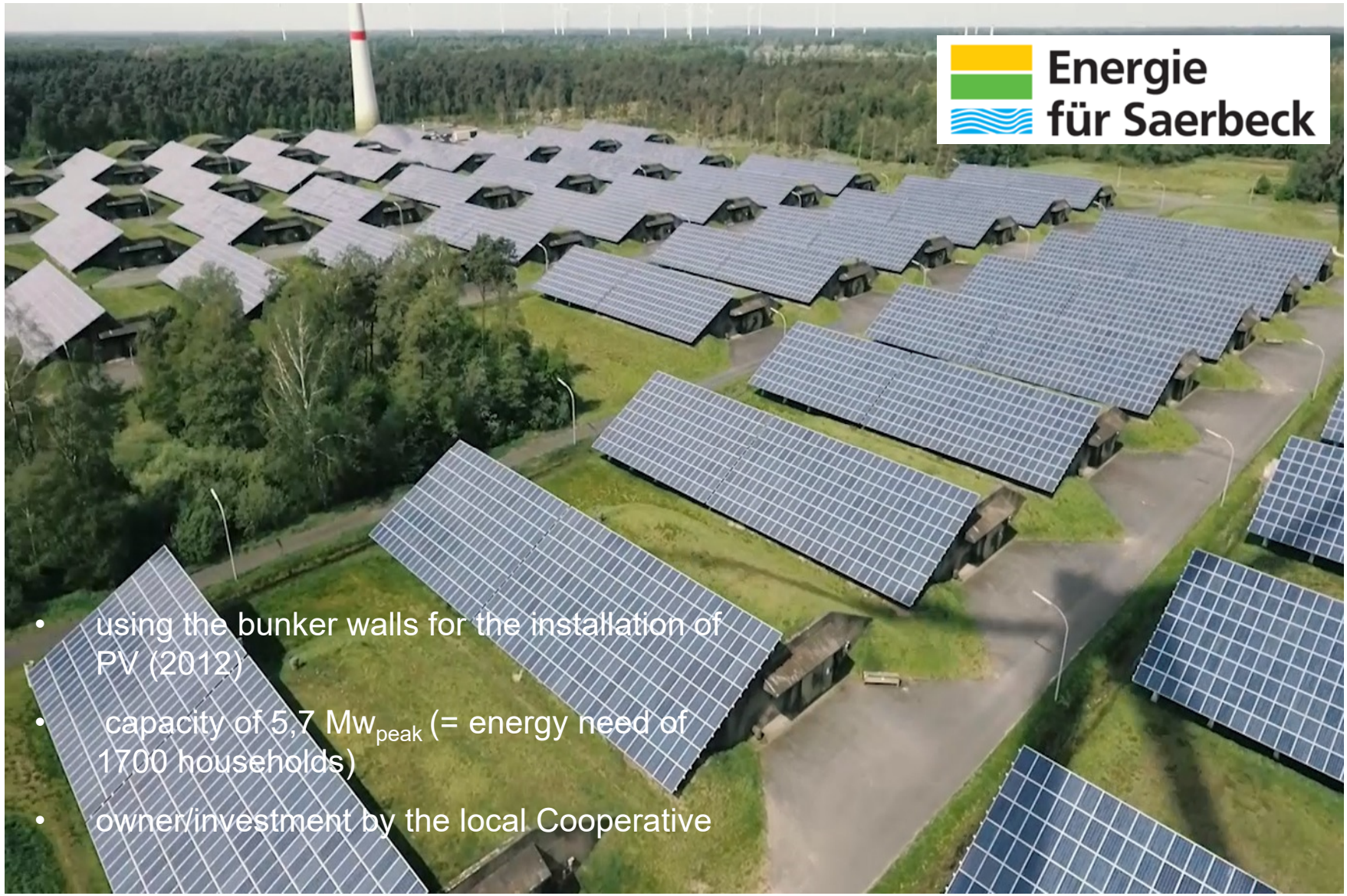
The Role of the City as a Player

Bioenergieparc-Management

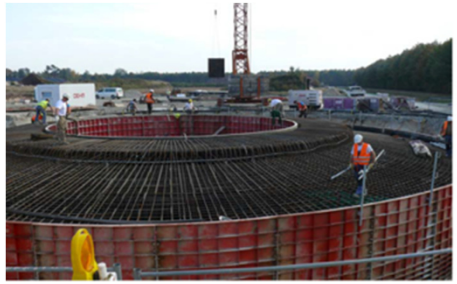


- city remains owner of the land
- only rentals and leasehold
- development and management by an own company
- city benefits from an own wind turbine
- new projects

“PV-Power-Park“



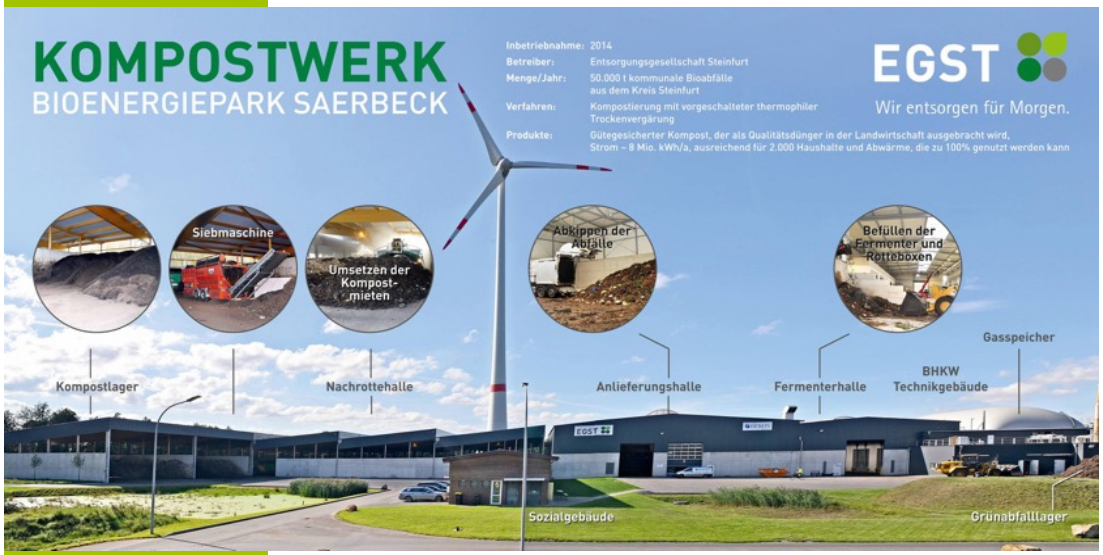
- using the bunker walls for the installation of PV (2012)
- capacity of 5,7 Mw_{peak} (= energy need of 1700 households)
- owner/investment by the local Cooperative



7 Wind Turbines

- 3 Megawatt each (3.050.000 kW)
- height: 199,5 meters
  hub height: 149 meters
  diameter of the rotor: 101 meters
- output projection: 6,5 -7 Mio kWh/y
- Windpool Saerbeck

Energy from Biomass-Plants
Circular Economy



- energetic use and material utlisisation (mass flow management of biomass input and output)
- 1 biogas plant in 2011(SaerGAS, 1MW$_{el}$)
- **ownded by local farmers**
- 1 composting plant:
- fermentation of all bilogical waste of the Kreis (= County) Steinfurt, 45.000 tons /year

Mo., 23.11.2020

Westfälische Nachrichten

MÜNSTER MÜNSTERLAND NACHRICHTEN SPORT

Startseite > Münsterland > Kreis Steinfurt > Brebaum: „Da ist Musik drin"

FH Münster kauft Gebäude und Erweiterungsfläche im Bioenergiepark

Brebaum: „Da ist Musik drin"

Saerbeck - Die FH Münster hat die ehemalige Fahrzeug- und Wartungshalle auf dem Gelände des Bioenergieparks gekauft, zusammen mit einem 8000 Quadratmeter großen Grundstück.

Mittwoch, 04.11.2020, 11:15 Uhr aktualisiert: 04.11.2020, 11:20 Uhr

BioeneryParc - a research site

- research on sector coppling, power-to-gas, bioenergy, storage, hydrogen
- research on education. For climat eprotection (IPN Kiel)
- ……

IPN Leibniz-Institut für die Pädagogik der Naturwissenschaften und Mathematik

SAERBECKER ENERGIEWELTEN

DBU-Projekt

Energiewelten PLUS

Berufsorientierung und Lehreraus- und -fortbildung für die Energiewende im Bioenergiepark Saerbeck

Stand: 10.07.2019

Vorhabenbeschreibung Saerbeck PLUS / 11.03.2019

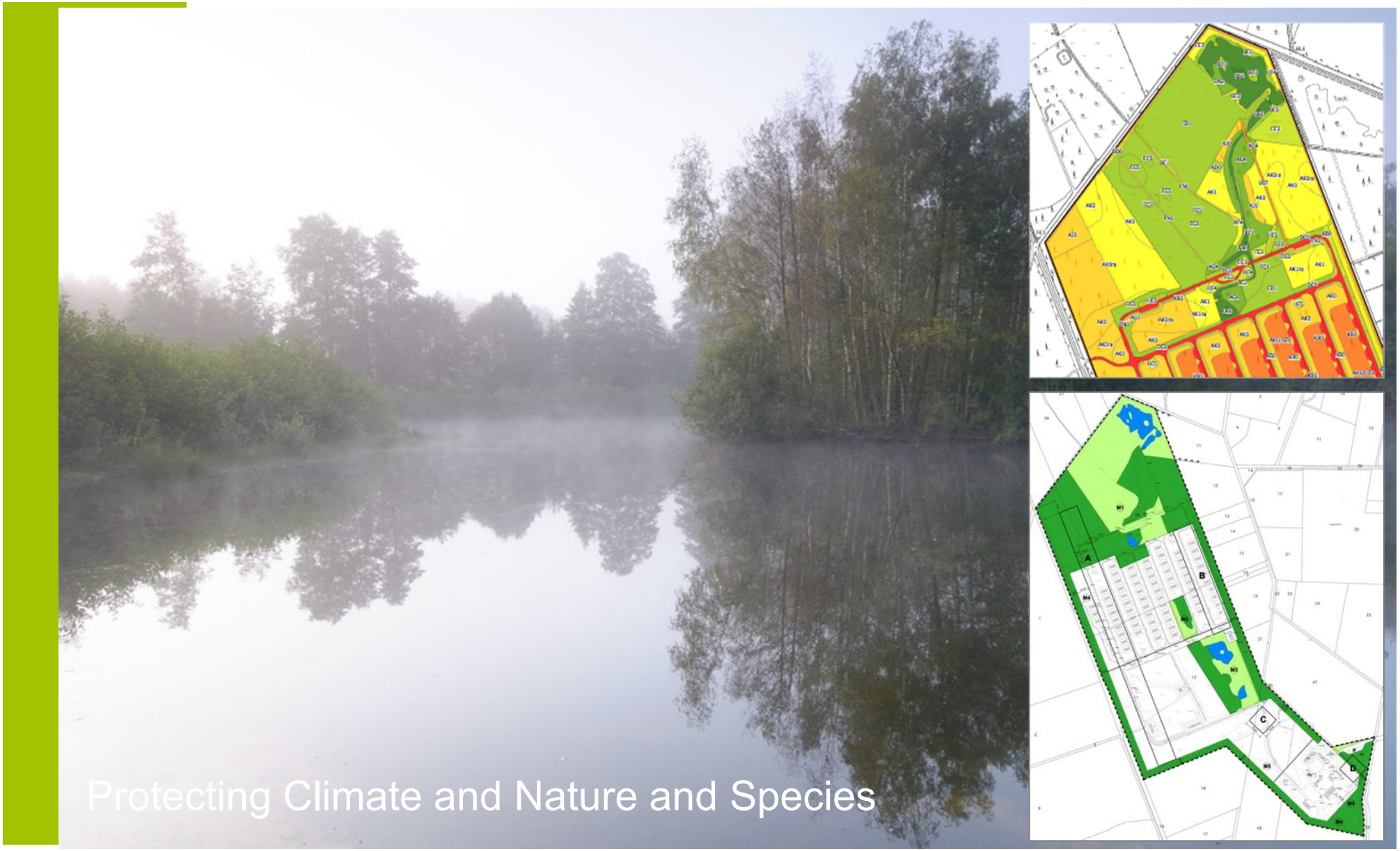
BMBF-Projekt

Klimakommune Saerbeck 2.0

Kompetenz- und Transferzentrum für erneuerbare Energien und Klimaschutz

(Saerbeck PLUS)

KLIMAKOMMUNE SAERBECK



Protecting Climate and Nature and Species

September 9th, 2021

Climate Adaptation

Space for New Nature and Biodiversity in the Bioenergyparc

Renewable Energy School

September 9th, 2021

FÖRDERVEREIN KLIMAKOMMUNE SAERBECK E.V.

Renewable Energy School

BEFORE COVID 19:

- 124 PROJECT DAYS
- 2,500 STUDENTS
- ESD CERTIFICATION APRIL 2020
- 6 TEACHERS FROM NOVEMBER 2019
- 3 ENVIRONMENTAL EDUCATORS
- NEW BUILDING FACILITIES

National and international Know-How-Transfer

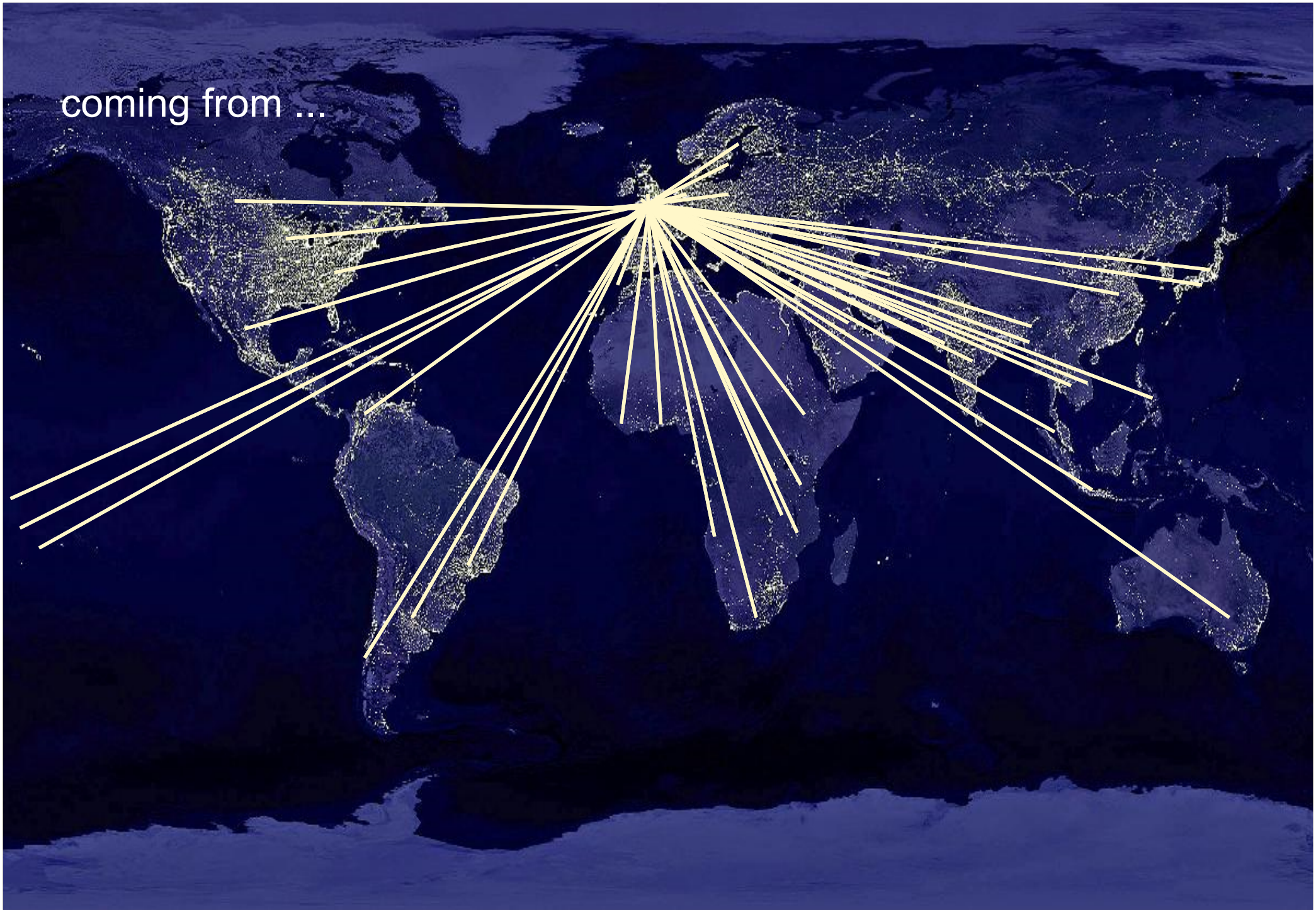
COP 23

Stipendiaten Humboldt-Foundation


Delegation from Africa

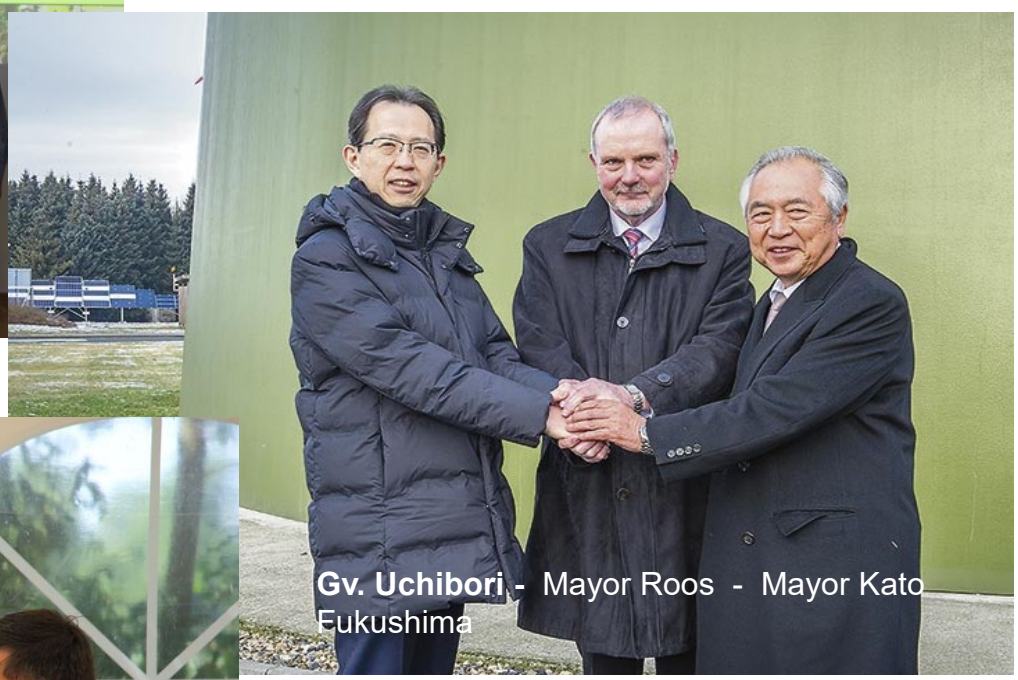
Members of the Japanese Parliament

more than als100.000 visitors ….


coming from ...

National and international Networks

Mayors of Al Ayoun - Deir Alla – Busaira
Jordan



Gv. Uchibori - Mayor Roos - Mayor Kato
Fukushima

Mayor Roos - City Manager Blaine Hill
Minnesota USA

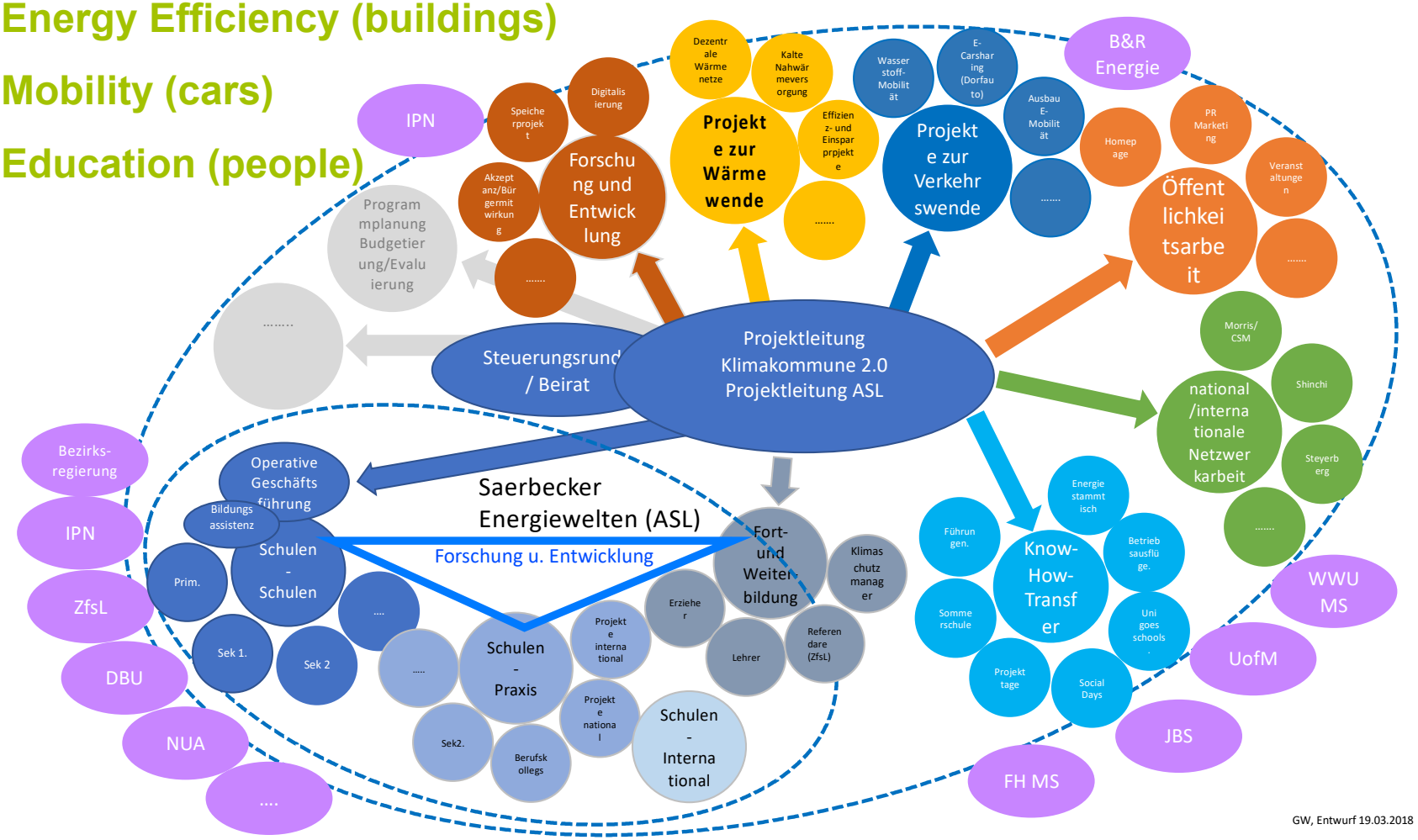
What still needs to be done: Klimakommune 2.0

3 main tasks till 2030:

Energy Efficiency (buildings)

Mobility (cars)

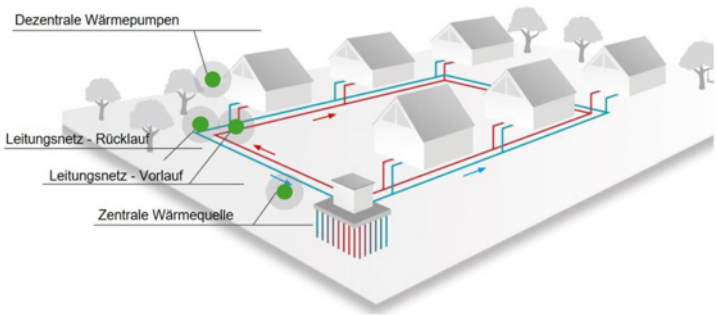
Education (people)



GW, Entwurf 19.03.2018

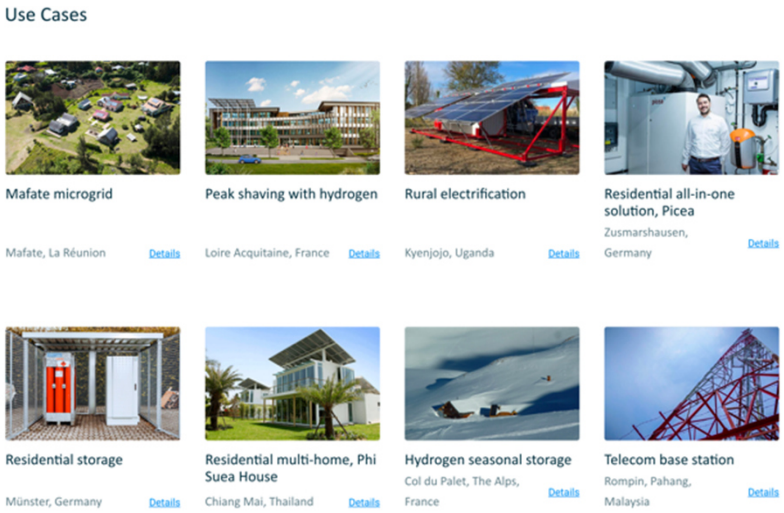
Agenda for Heat Transition

as of November 2020



- Different approach for existing and new buildings
- Target: replace fossil fules for heating by renewables
- New houses: cold local heating, sustainable housing development, e-charging stations, housing mix (MFH, EFH, community living): approx. 380 applicants.
- Existing buildings:
- Replacement oil boiler , approx. 40% of houses.
- wood chips instead of liquid gas (agriculture, outdoor areas)
- Green biogas from the BEP
- Climate community vouchers for commercial enterprises/entrepreneurs' regulars' table
- Support manager/energy consulting (municipality/expert)
- Climate protection citizens (farmers, households, businesses): good examples

Hdrogen – a next step



Quelle www.enapter.com

- Hydrogen in the heat transition in existing buildings (cold local heating in new buildings)
- Electrolyzer manufacturer

  - 19" stacks, clusterable

  - AEM technology

  - Construction 2021

  - Production start 2022: 100,000 electrolyzers

  - 300 new jobs

  - Enapter Campus

Sustainable Mobility

Ladesäulen-Infrastruktur


Stammtisch E-Mobilität


Fahrrad-Flotte

Westfälische Nachrichten

MÜNSTER MÜNSTERLAND NACHRICHTEN SPORT

E-Mobilität

Elektro-Auto der Verwaltung testen

Saerbeck - Die E-Mobilität ist für die meisten Neuland. Wer mit Elektro-Autos noch fremdelt oder neugierig auf die Technik ist, dem bietet die Gemeinde Saerbeck jetzt die Möglichkeit, den Renault Zoe, das Dienstfahrzeug der Verwaltung, übers Wochenende kostenlos auszuleihen. Die dafür nötigen Unterlagen stehen im Laufe der Woche online. Von Jan-Philipp Jenke

Dienstag, 19.11.2019, 12:00 Uhr

E-Dorfauto

NRW-Wettbewerb: Wasserstoff-Mobilität

Kreis Steinfurt

Treibstoff der Zukunft – Grüner Wasserstoff mobilisiert das energieland2050

Bewerbung des Kreises Steinfurt als Modellregion Wasserstoff-Mobilität NRW

WASSERSTOFF-KOMPETENZZENTRUM

HYMAT-H2 Energie

Grün. Wertvoll. Aus dem Kreis Steinfurt.

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