

Success stories of energy communities

„Energy Communities: An Interreg Europe Policy Learning Platform workshop on building citizen engagement in Energy Communities“, 04.12.24, Budapest

Citizen participation in Pfaffenhofen



Dr. Holger Klos, Dr. Helmut Muthig

**Citizens' energy cooperative in the district of Pfaffenhofen e.G.
(BEG)**

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A. Heilmeier, R. Gerlsbeck, S. Hettenkofer (SWP)



Links: Citizens' energy cooperative in the district of Pfaffenhofen e.G. (BEG)
buengerenergie-pfaffenhofen.de/

Municipal utilities of Pfaffenhofen (SWP), stadtwerke-pfaffenhofen.de
Municipal utilities of Pfaffenhofen pfaffenhofen.de





Taking energy supply into your own hands



Climate Protection Activities I

- 2001: biomass power plant – Kyoto protocol fulfilled
- 2002: first civic solar power plant in Bavaria
- **2008: energy and solar association (ESV) est.**
- 2010: annual energy congress started
- 2011: sustainable building area – EcoQuartier
- **2012: citizen energy cooperative (BEG) est.**
 - ➔ First cooperative solar carport in Bavaria
- 2013: integrated climate protection concept (SECAP)
- 2013: climate protection day (every year)
- 2014: full-time climate protection manager



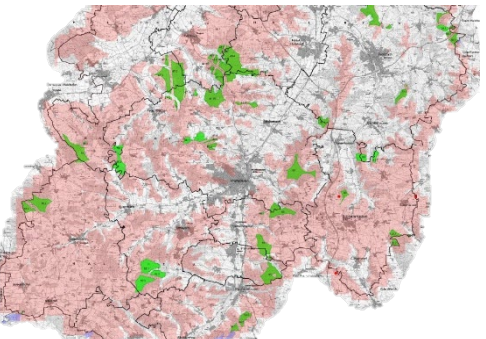
Integriertes Klimaschutzkonzept
Stadt Pfaffenhofen



Climate Protection Activities II



- 2015: first citizen wind turbine (public funded)
- 2015: climate protection award
- 2016: transfer of local electricity and gas grid to SWP
- 2016: wind power use zoning plan
- 2016: public decision for wind farm
- 2017: sustainable development goals adopted
- 2017: start of plastic free Pfaffenhofen
- 2018: start of organic farming project
- 2019: free city bus
- 2020: Citizens' workshop on climate change adaptation
- 2021: climate plan 2035 (SECAP*) adopted
- *integrated climate protection concept



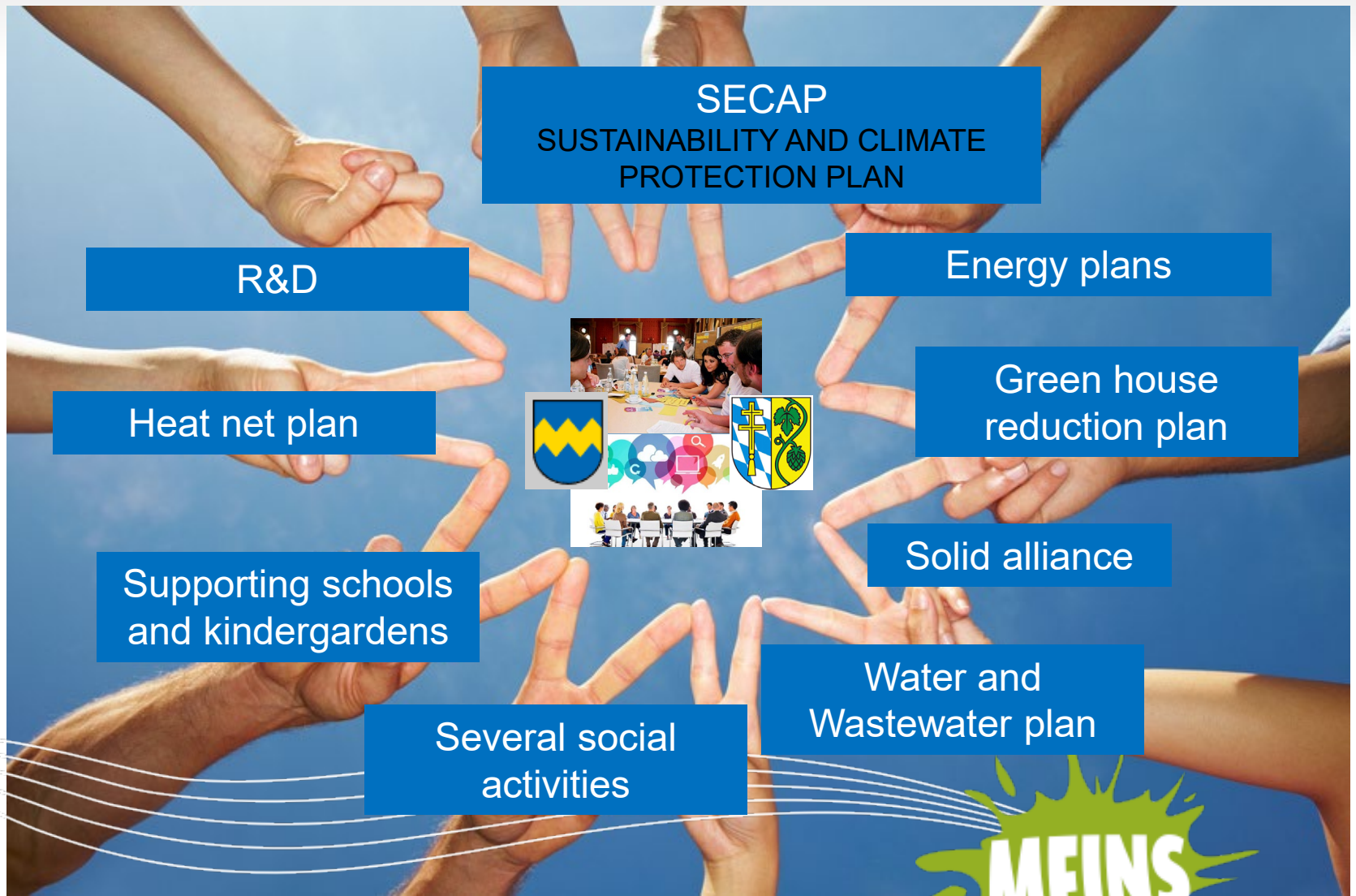
OZIELE
FÜR NACHHALTIGE
ENTWICKLUNG

Climate Protection Activities III



- 2023: building of the 1st citizen windfarm in Bavarian 3 wind turbine => 12,6 MWel. (each 4,2 MWel., E-138)
- 2024 (March): Finalisation of the citizen windfarm



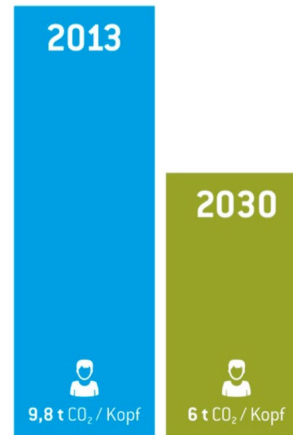
Together the citizen and all relevant stakeholders in the region



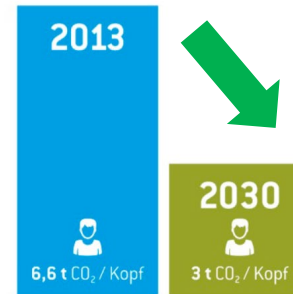
Stringent target definition ...

Additional examples from Pfaffenhofen

- CO₂ reduction target

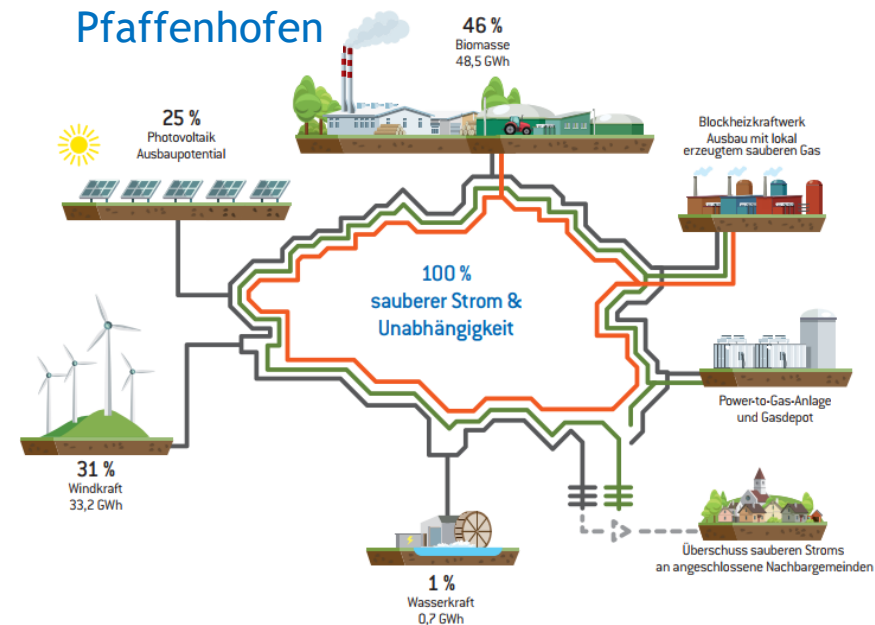


Germany



Pfaffenhofen

- 100 % sustainable energy in 2030 (clean and locally produced)
- public communication strategies





100%

CLEAN ENERGY

For our citizen

Our path to a 100% independent and clean electricity supply for the city and the district of Pfaffenhofen



unsere Energie!
BÜRGERENERGIE
IM LANDKREIS PFAFFENHOFEN A.D.ILM

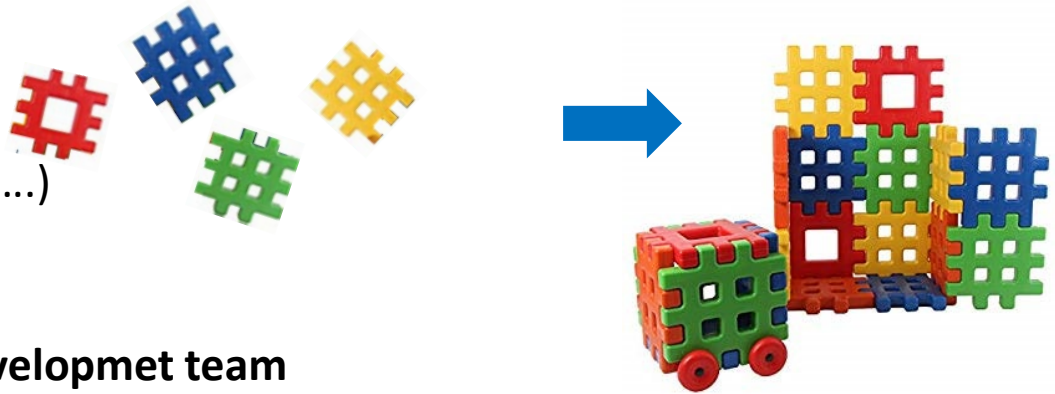
Important part of the success story!
Remunicipalisation of the grid for electricity and gas

Key success factors for civic involvement

From our Pfaffenhofen experience over the last two decades, we consider the following aspects to be important for a successful civic involvement

- awareness-raising

(workshops, event on market-places, Citizens' referendums,)



- stringent target definition
- **professional project / pilot development team**
- „professional“ **member of the board and advisory board members (team and LPP[©])**
- public involvement from the very beginning
- planning support by software tools (domestic and large scale)
- investment opportunities for the public / acceptance of projects by civic co-financing possibilities
- **consistent communication strategy throughout all phases**

Citizen Energy Cooperative PAF (BEG)



Founded in **2012**, resulting from an initiative of Energy and Solar Society (ESV)

- 2012: first cooperative solar carport in Bavaria
- 2015: ground-breaking ceremony for the 1st public-funded wind turbine
- 2016: wind turbine in full operation and successful
- 2023: building of the 1st citizen windfarm (3 wind turbines, now under construction)
- **2024: > 1.326 members, > 10.000 shares**



Executive Board & Supervisory Board 2022

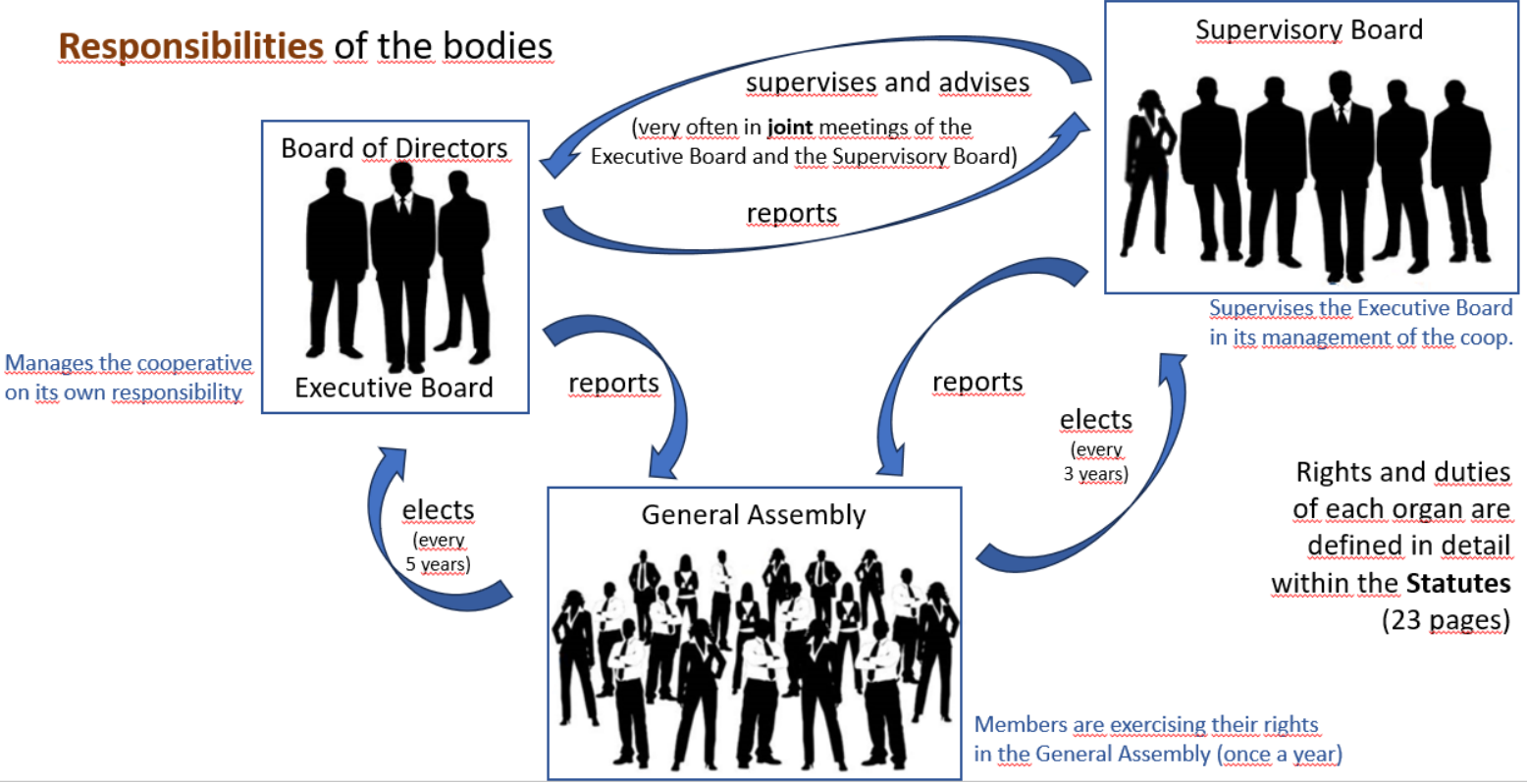


Citizen Energy Cooperative PAF

(BürgerEnergieGenossenschaft, BEG)



Responsibilities of the bodies



How to become a member of the cooperative of the BEG?



How to become a **member** of the Cooperative?

- Buy (at minimum) **one cooperative share**
- One share costs **130 €**
- You are allowed to buy up to 50 shares (equiv. to 6.5000 €)
- You become co-owner of the cooperative with **one vote**, independent of the number of shares you acquire
- As a member of the cooperative you are entitled to participate in profits of the cooperative, paid per share



Very important:

- Only as a cooperative member you are entitled to invest into the different Renewable Energy Projects the cooperative is launching

How to invest in certain projects as a member of the cooperative of the BEG?

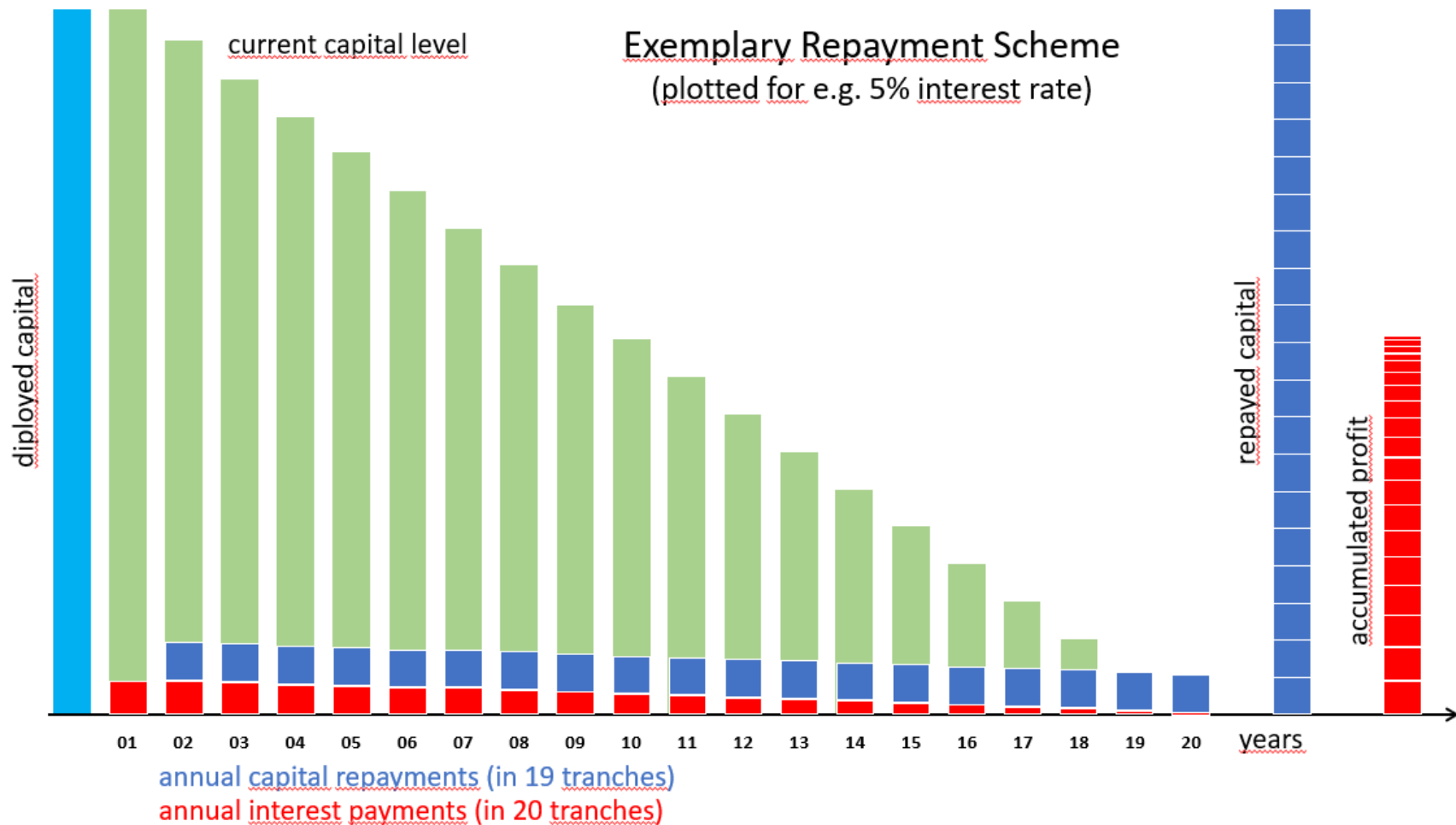
Invest in a certain projekt: Public Acceptance of Projects by **Profit Sharing**

Well-elaborated offers for private investments by members of the cooperative acc. to their preferences, e.g. Wind, Solar, Water power, Biomass, ...

- Project participation starting from 1.000 €
- Cooperative members are granting a partial loan to the cooperative
- Annual return of interests and of a proportionate repayment of the loan (usually 20 years of duration)



What does an exemplary repayment scheme look like for a BEG member?







Founding of the Wind Alliance



Result referendum

YES - 56,9 %

Ja (Niedersch.: C 01 insg.)		56,9 %
Nein (Niedersch.: C 02 insg.)		43,1 %

Wahlberechtigte: 19.766

Wahlbeteiligung: 59,6%

Nr.	Stimmbezirk	Wahlberechtigte	Wähler /-innen	Ja (Niedersch.: C 01 insg.)	Nein (Niedersch.: C 02 insg.)
1	Rathaus	19.766	478	271 57,1%	204 42,9%
B11	Joseph-Maria-Lutz-Grundschule	-	1.145	584 51,2%	556 48,8%
B12	Joseph-Maria-Lutz-Grundschule	-	1.139	599 52,7%	537 47,3%
B13	Joseph-Maria-Lutz-Grundschule	-	1.122	589 52,7%	528 47,3%
B14	Joseph-Maria-Lutz-Grundschule	-	1.145	580 51,1%	554 48,9%
B15	Joseph-Maria-Lutz-Grundschule	-	1.185	614 52,2%	562 47,8%
B16	Joseph-Maria-Lutz-Grundschule	-	1.027	550 53,8%	472 46,2%
B17	Joseph-Maria-Lutz-Grundschule	-	1.149	743 64,9%	402 35,1%
B18	Joseph-Maria-Lutz-Grundschule	-	1.077	706 66,0%	363 34,0%
B19	Joseph-Maria-Lutz-Grundschule	-	1.204	699 58,5%	495 41,5%
B20	Joseph-Maria-Lutz-Grundschule	-	1.104	725 66,2%	370 33,8%



Success for the Wind Alliance

Citizens' wind turbine Pfaffenhofen in the "Lustholz"

Manufacturer and Type:	Enercon E115 (3 MW Output)
Commissioning:	March 2016
Average annual wind speed:	6 m/s
Wind yield:	6,200,000 kWh (around 1,500 households)
Rotor diameter:	115.7 m
Hub height:	149 m
Total height:	206.83 m
Turbine concept:	Gearless generator with variable speed

Citizens' wind turbine Pfaffenhofen



Citizens' wind turbine Pfaffenhofen in the "Lustholz"

Investment: 5,350,000 €

Land leased for 30 years

Interest rate: 3 %

Term: 20 years, annual repayment of 1/19 of the loan

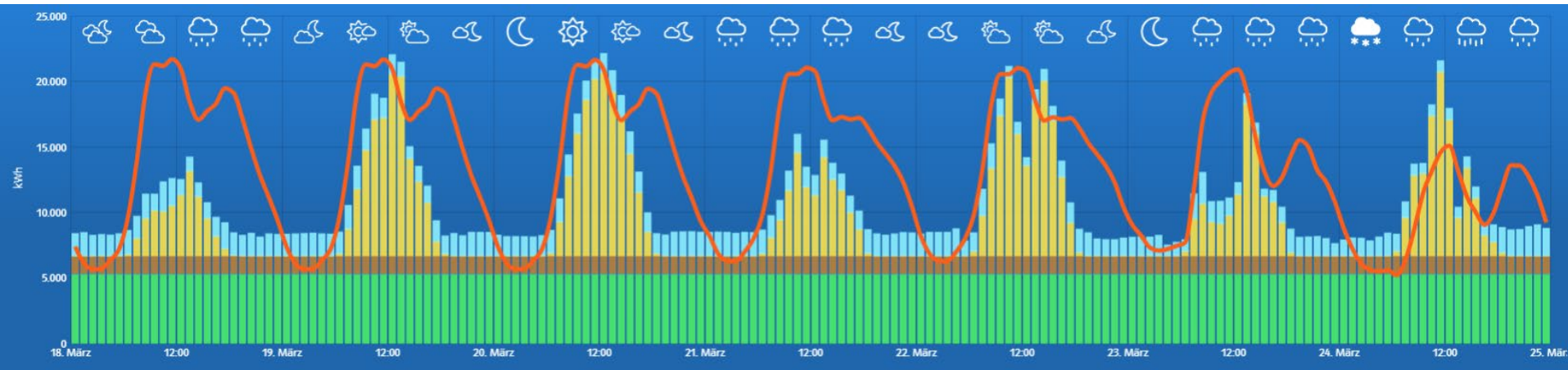
Financing: 9% Enercon
34% Citizens' loan
57% bank loan

Citizens' wind turbine Pfaffenhofen



Online Energy monitoring for our citizen

Hourly production and consumption: e.g. 18.03.-25.03.24



Regional generated electrical power mix, Pfaffenhofen, GER

➔ Without our three new wind turbine

- Consumption
- Wind power
- Photovoltaics
- Further
- Water power
- Bio



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Tree planting



Municipal Utilities Pfaffenhofen



2013

2014

2015

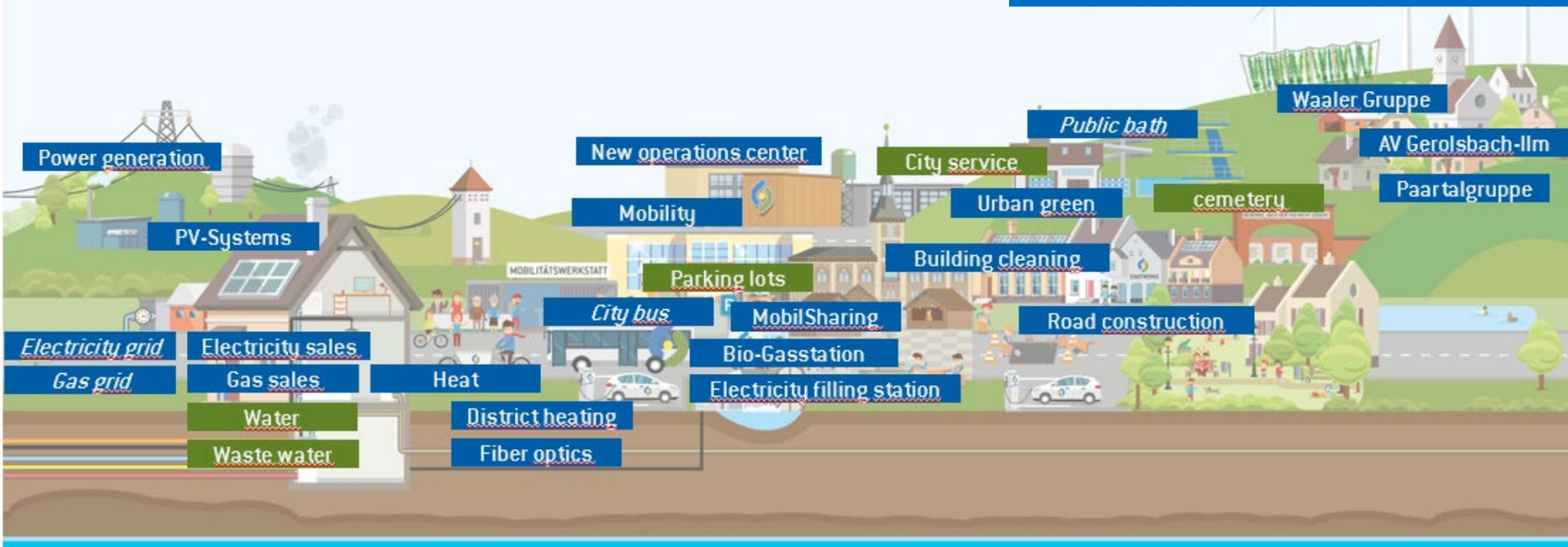
2016

2017

2018

100% owned by the City of Pfaffenhofen
65 employees

Supporting and supplying
~ 27.500 citizen





BÜRGER ENERGIE BAYERN e.V.

In 2014, we **founded this association**, which collects the common economic and political interests of the Bavarian citizen-owned energy industry.

This includes around **250 Bavarian citizen-owned energy cooperatives (around a quarter of all German BEGs)**, but also municipal and public utilities, the majority of which are publicly owned, and all other companies that operate regenerative citizen-owned energy plant.



Citizen participation in Bavaria

bavariastrom.

g'radaus bayrisch. unabhängig. regional.



Regional electricity tariff for Bavaria and Pfaffenhofen





Funding of KEI => Municipal company for energy and infrastructure in the district of Pfaffenhofen

(Kommunalunternehmen Energie und Infrastruktur (KEI))

„The establishment of the municipal company is an important step in supporting the energy transition in the district“, District administrator in the district PAF, A. Gürtner, Donaukurier, 10.09.2023

New regional company for energy and infrastructure



Power-to-Gas: Installation and testing of an R&D project on the wastewater treatment plant site in PAF

Research project ORBIT II (www.orbit-projekt.de)

Expansion of a highly efficient trickle bed bioreactor and optimization of the methanation system for commercial industrial use



Research and Projectmgt. And industry partner



Associated partners

Please see: orbit-projekt.de/?page_id=27

Interreg projects and other international projects with Irland and Costa Rica: E.g. LEEWAY



Interreg
Europe



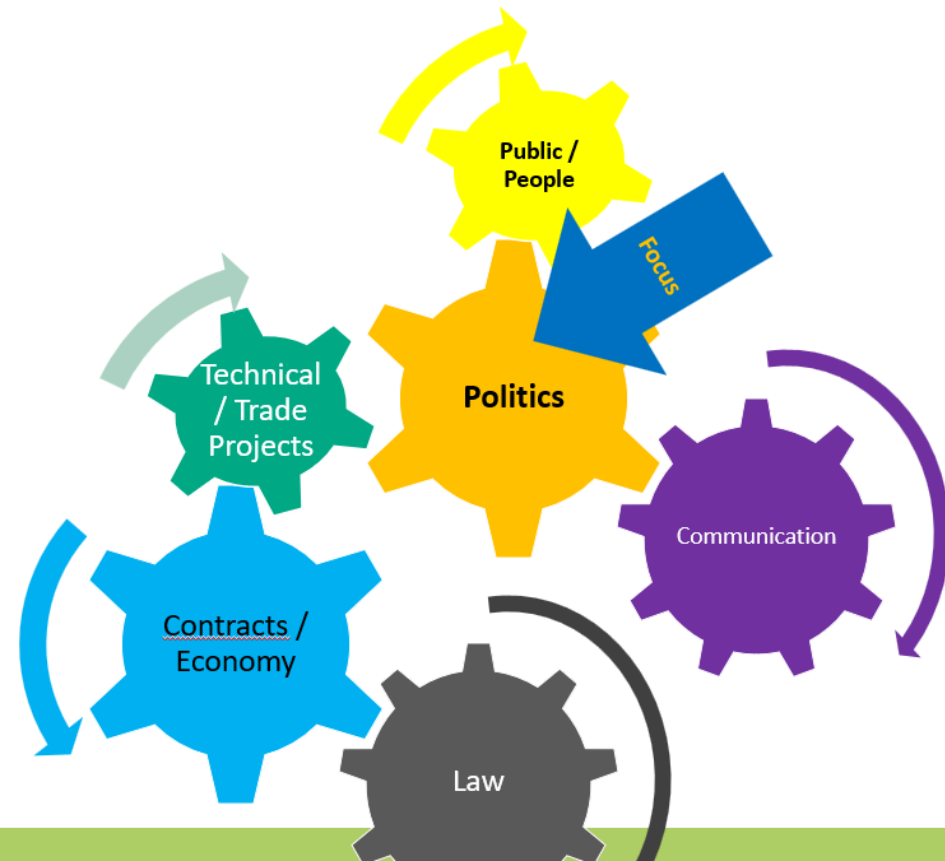
Co-funded by
the European Union

LEEWAY

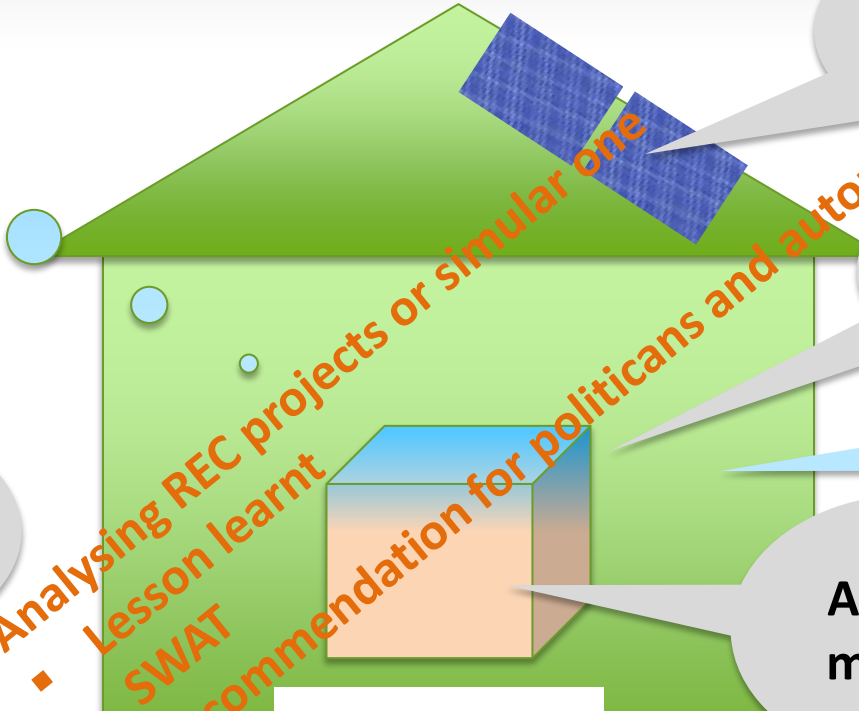
Main output of the LEEWAY-Project:
„LEEWAY - LEading coopErAtion toWArDs energy communities policies tackling energy poverty

The LEEWAY project aims to promote the adaptation of energy policies for the creation of REC through the sharing and exchange of experiences between public authorities and regions. To achieve this goal, the project foresees the participation of local and regional authorities from different EU countries (ITA, BE, PL, D, HR), which together with development agencies are directly responsible for the elaboration and implementation of energy development policies.

Source: LEEWAY project webpage,
10.09.2023



Real or virtuell building



E.g. a photovoltaic plant

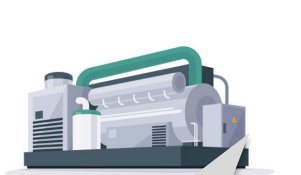
Smart meter

Data analysis / data monitoring

E.g. a electric car



Appartment(s)



E.g. CHP



E.g. a heat pumps

Initial approach of an (one) joint virtual pilot (some possible technique elements)

Started documentation as an approach!



Common base example, PV-Multi-Family House / Apartment block

The aim is to provide relevant "lessons learnt" from real, mixed real or virtual projects in order to facilitate and promote a fruitful exchange between the LEEWAY project partners in the areas of law, technology, economics and future energy policies (national, regional and for authorities).

1. Project partner LEEWAY

Project partner	PP06 & AP05.	
Contact person	First name	City Admin. / Municipal utilities of PAF
	Last name	
	Email	
	Phone number	

2. Common base general information


Geographical scope of the practice:	Select National/Regional/Local	
Location of the practice	Country	Germany
	Region	Country of Pfaffenhofen
	City	Pfaffenhofen
Practice images of the analysed (project) examples		

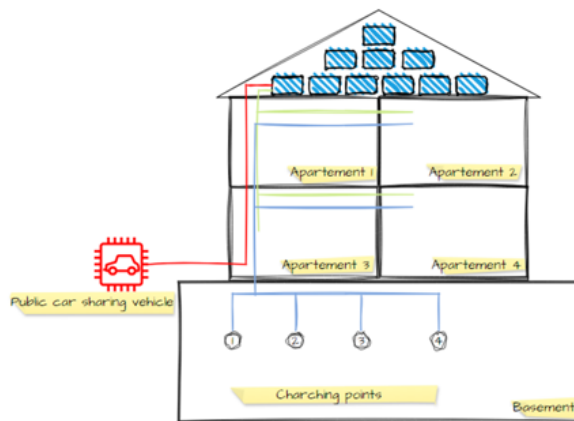
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 - 5.1.7. Output / General findings
6. Possible input from this documentation to promote the adaptation of energy policies to create REC

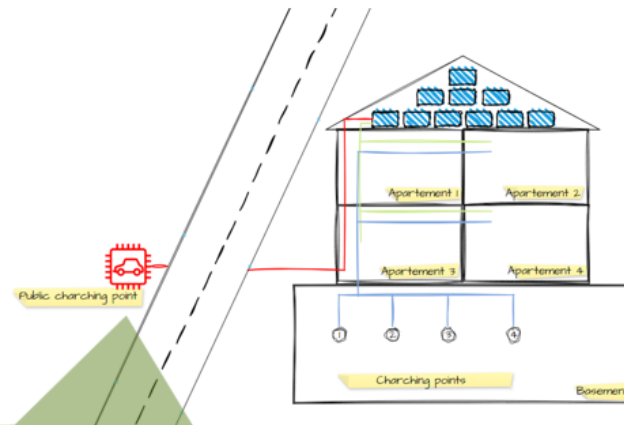
Comparison of the current situation with the future vision

Now

Energy sharing –
Vision of the future



- Photovoltaics
- Tenant electricity model
- Tenant electricity model - extended
- Tenant electricity model - public car sharing
- Wallbox



- Photovoltaics
- Tenant electricity model
- Tenant electricity model - extended
- Energy sharing
- Wallbox

There are still many unanswered questions in the areas technology, economic efficiency (models), billing, taxes, law,...



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Thanks for listening!



Thank for your attention



Further questions?

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in the district of Pfaffenhofen e.G. (BEG)

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