



Climate action, renewable energy and value added – opportunities for regional development !

The part of districts and local communities using the example of the German „energy-local authority of the decade“ in 2018

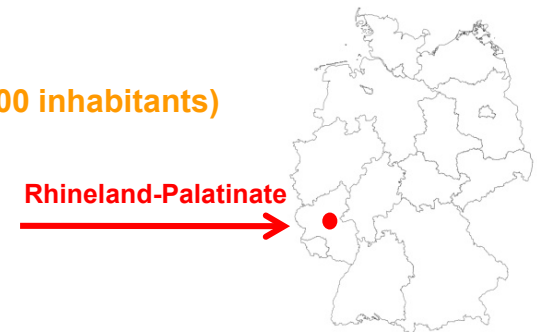


Introduction

District of Rhein-Hunsrück



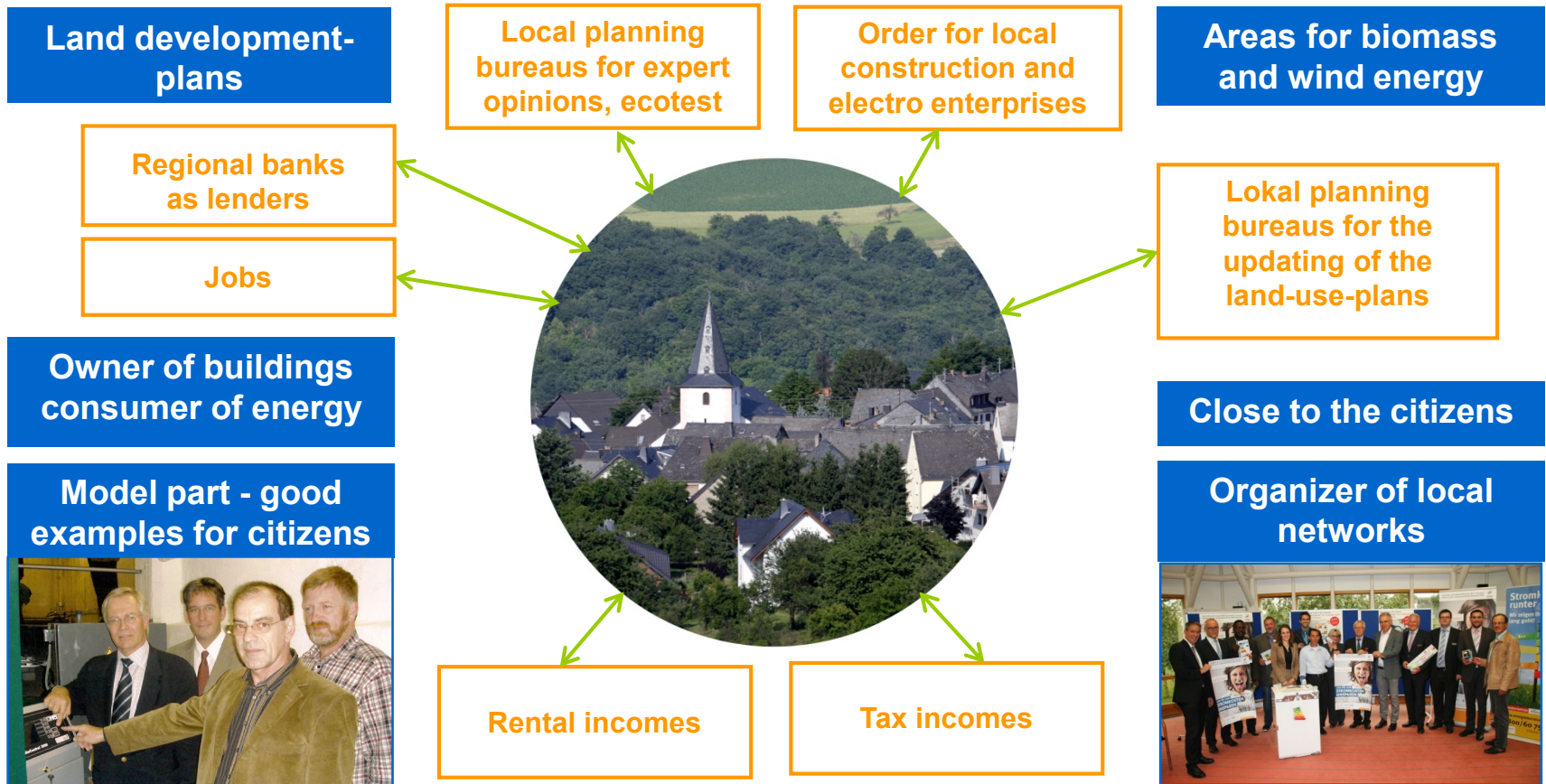
- 103.000 inhabitants
thereof 8.100 foreigners
- Area: 991 km²
45% forest
42% agriculture
- 137 settlements
(75% with less than 500 inhabitants)



Head of the district authority (retired)
(District of Rhein-Hunsrück)
senior adviser – Mr. Bertram Fleck
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National governments can set goals, but to implement set goals you need municipalities

Benefits from renewable energies



Local authorities are the born strategic partners of the district government !

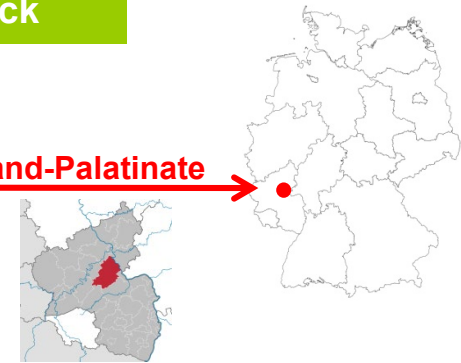
Our aim: we want to transfer 290 Mio. € of energy imports into regional value creation

Total expenditures for energy imports in the district of Rhein-Hunsrück

approx. 290 Million €



Rhineland-Palatinate



Objective of our climate protection concept:

Total expenditures for energy imports of the federal republic in
2012: around 92 Billion €
40% more compared to 2010
2017: around 80 Billion €

Source: Fact booklet of the agency for renewable energies, State May/2013

We want to tie **250 Million €** of annual energy import costs into the region until 2050!

We convert energy import costs into regional jobs and value creation through energy efficiency and renewable energies!

In 1999 we started with energy efficiency at our public-owned buildings

Achievements of the energy controlling operating since 1999

Reduction of:



→ Heat demand by **25 %**



→ Water demand by **26 %**



→ CO₂ emissions **9.500 tons**
→ Cost savings **2.000.000 €**

Year	C / KWh
1996	1,79
1997	2,21
1998	2,14
1999	1,92
2000	3,71
2001	4,65
2002	3,56
2003	3,74
2004	3,55
2005	4,43
2006	5,91
2007	6,21
2008	7,61
2009	7,10

+ 400 %

→ Energy efficiency is the sleeping giant

During the same period, however, heating energy costs have quadrupled!

Increase of:



→ Electricity demand about **25 %**

2005
Certified with the
Energy Seal of the State
of Rhineland-Palatinate

Despite doubling the number of PC's, introduction of air-conditioned server, introduction of catering and of all-day-school. Consumption of electricity is absolutely increased by 5%.

But without additional measures of energy controlling the increase would have been 30%.

of district owned buildings by 2010

17 biomass local heat networks in operation

Example: Material Flow Management

Public building complexes are merged to district heating networks and heated with **tree and shrub cuttings** (120 collecting points, central treatment place)

The first step: Fuel preparation in the central processing place

Startscreen



High quality compost:
approx. 40% of the total
material

Fuel:
approx. 60% of the total material

Annual savings: 800.000 Liters
Fuel oil equivalent

Total invest: 9 Million Euros netto
In 20 years energy import costs of
15 Million Euros will remain in the
region (with a price increase
20 Million Euros)

Three biomass heating networks
in school centers:

22 school buildings,
8 sports halls, 1 town hall
2 indoor and 1 outdoor
swimmingpools,
1 library, 2 old people's home

The second step:

Thermal processing in the
central heating station
with burning capacity
of 500 to 850 kW



Fuel storage facility



Central heating station

17 biomass local heat networks in operation

Example: Material Flow Management

Corporate solar thermal supported heat network: Communities of Külz and Neuerkirch 2015

Mayor retired Aloys Schneider (deceased 18th March 2018) und Volker Wichter

source: Rhein-Hunsrück-Zeitung, 20.09.2016



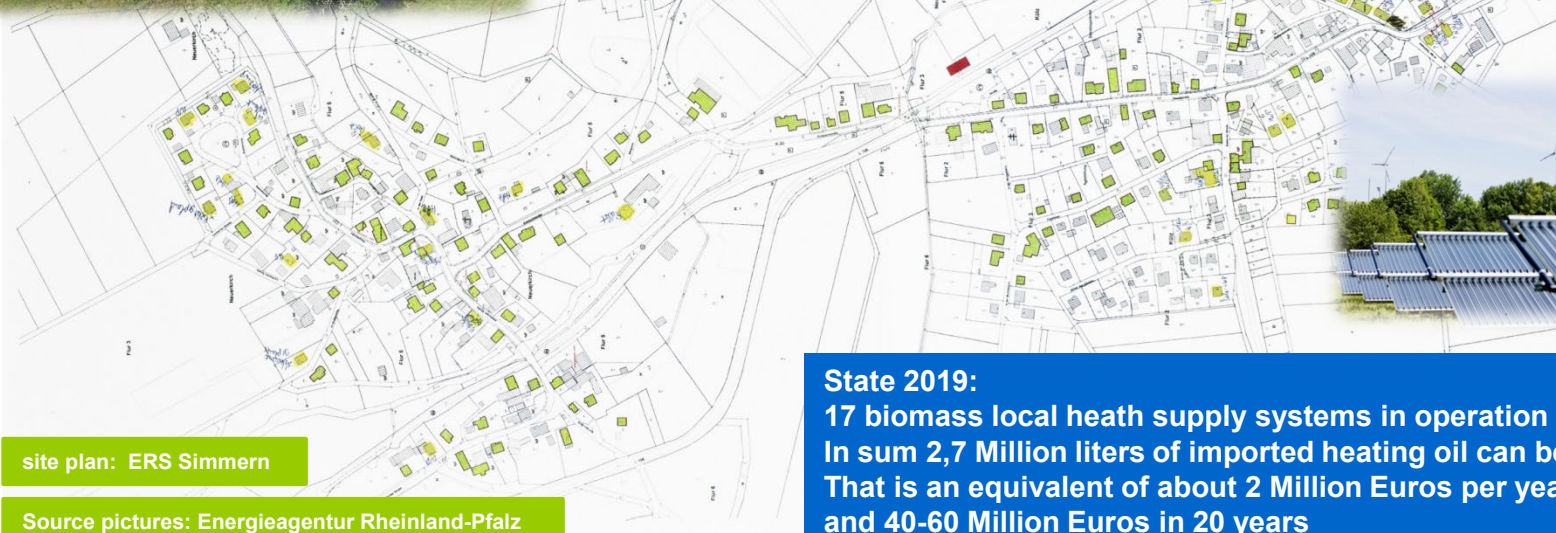
picture: ibs Energie, Stromberg



Ca. 150 houses in 2 communities
Rate of connection 80%
(together 760 inhabitants)

Heat generators:
2 Wood-chips-heating boilers,
1.420 sqm Solar thermal field

start of construction Spring 2015,
commissioning Summer 2016



site plan: ERS Simmern

Source pictures: Energieagentur Rheinland-Pfalz

State 2019:
17 biomass local heat supply systems in operation
In sum 2,7 Million liters of imported heating oil can be avoided
That is an equivalent of about 2 Million Euros per year in 2018
and 40-60 Million Euros in 20 years




Roofs – Source of revenue

District administration as a role model

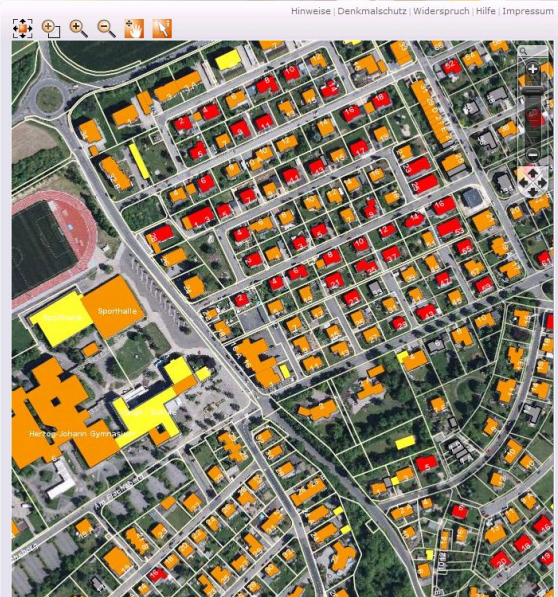
Aim: 1000-roofs-photovoltaic-program – Outcome: 4.775 roof plants

District of Rhein-Hunsrück; Volksbank and Raiffeisen Bank Institutes in the District; Smart Geomatics; State agency for measuring



KREISVERWALTUNG
RHEIN-HUNSRÜCK-KREIS

www.solarkataster-rhein-hunsrueck.de - online since 2010




Outcome:


Out of 80.000 roofs in the District
58.600 are suitable for PV.
Nearly the entire annual power
demand of about 474 Mio. kWh could
be covered.

At the moment already 19 % of this
potential is used.

2007:



2011:



Regional share of invest
(once):

38 Millionen €

Regional feed-in tariff
(annual – for 20 years) :

20,8 Millionen €

At the end of 2019, 278 wind power stations have been operating in the district

Source picture: juwi Energieprojekte GmbH



film shooting of Mr. Tetsunari Ida und Mr. Hiroyuki Kawai, 30th of August 2016

In the early days of the 20th century, in the Hunsrueck many municipalities erected water wind mills

1995 the first modern wind turbine (600 kW annual, yield 800,000 kWh)

2010 first repowering-project. The yield increased **sixfold** to 5 million kWh per wind turbine

2017 newest generation of weak-wind turbine “Nordex N-131” with 11-12 million kWh of annual yield and 3,500 full load hours

End of 2019:

278 wind power stations with a power of 712 MW are producing more than 1,36 billion kWh of renewable power per year

7 Million € of annual leasing income for the municipalities
1,6 Million € servicing costs
2,2 Million € feed-in tarif (only regional)
in 20 years 216 Million € regional added value

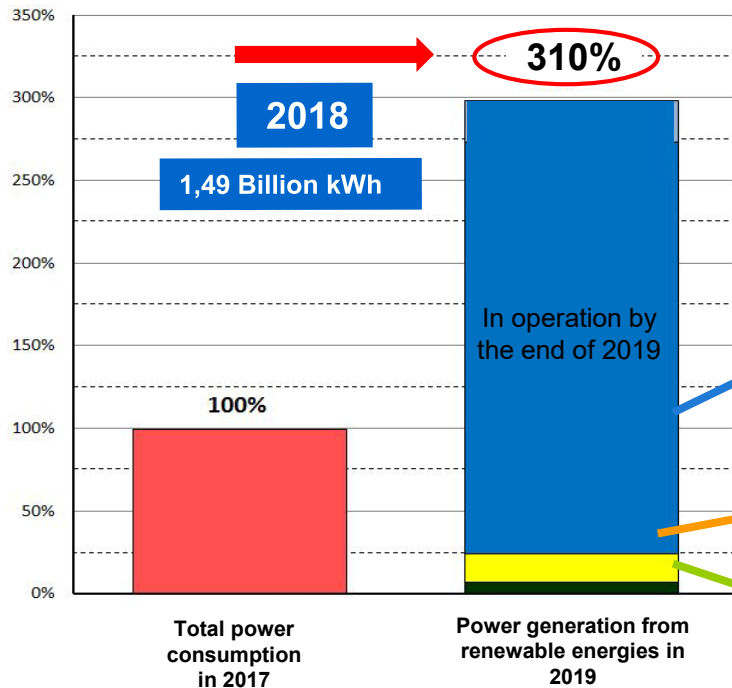
The share of renewable electricity in the district will probably be at 310 % by the end of 2019

Total power consumption 480 Mio. kWh in 2017

informational:
Hydro power

Ø Federation
3,3 %

since 2010: Pilot project river turbines
in the Rhine at St. Goar



278 turbines
712 MW capacity

Wind energy
284,31 %
Ø Federation 14,5 %



4.775 plants
104 MW capacity

Photovoltaic
19,48 %
Ø Federation 7,1 %



18 plants
6,1 MW capacity

Biomass
6,65 %
Ø Federation 8,0 %



Share of renewable energies: 310 % Ø Federation 38 %

Measure of climate protection concept: Usage of electricity surplus from wind and sun

Climate-neutral mobility

2011 first public electric-filling-station
in the district – government- building,
experimental-car

since 2010 one Hybridcar

2014 two electric-Smarts

**We drive with wind- und sunpower
from the Hunsrück and from the Rhine**



Our E-Car-Sharing model: On the way to the future!

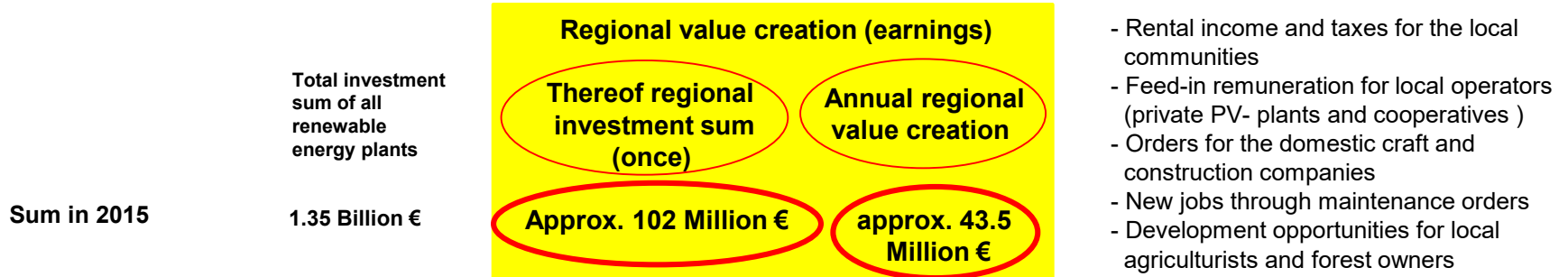


From 2019 to 2021 the district put seven E-Cars at the disposal of seven small communities, that the citizens can use the cars without costs (change in other communities after one year).

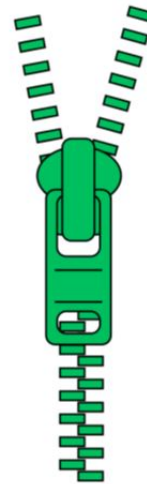
Regional value creation and Public service

Recognition of interfaces and use!

Step by step we convert energy import costs into regional jobs and value creation through energy efficiency and renewable energies!



**Renewable energies/
energy efficiency**



**Demographic change/
Public service**



Public services via renewable energies at the example of the local congregation Mastershausen

Private wind- and solar parks on communal-owned areas



990 inhabitants

The local congregation is using its rental income from the Wind and Solar park for:

- Expansion of local streets 570.000 €
- Vitalization program for old buildings in the village center 50.000 € per year
- Support for local clubs annual 15.000 € for 10 clubs in total
- Reconstruction of the old school into a retirement home with a meeting room 1.500.000 €
- DSL-connection, own contribution 101.000 €

...and much more...

14 Wind turbines (step by step since 2007)
Rental incomes from wind energy for the local congregation: approx. 300.000 € per annum, contract period 20 years

Photovoltaic systems on terrain with 2 MW capacity (commissioning in December 2010)
Rental incomes for the local congregation: 630.000 € uniquely payment in October 2010

Extracurricular learning center for environmental education

Educational concept:
Energy from regional sources

Learning
stations:

Sun

Biowaste



Methane is produced by bio-waste



Usage of PV

Tree and shrub cuttings



Heat for school centers



Extracurricular learning facilities

Wind



Wind turbine for the generation of electricity

If you want to change the world, you shall start with the children!

Climate protection concept: Zero Emission Rhein-Hunsrück District

Development of the Concept 2010-2011 by the Institute for applied Material Flow Management (IfaS)



Set up of an energy and pollutant opening balance sheet

Determination of renewable energy and energy efficiency potentials



Holding 9 workshops with different topics and more than 300 participants - Networking

Set up of an energy and pollutant closing balance sheet, scenarios 2020 and 2050

The District will on the balance sheet become a zero emission District in electricity, heat and transport sectors already in 2020.

Set up of a catalogue with 92 individual measures
First activity: Measure modernization of heating systems and exchange of pumps

Appointment of a Climate Protection Manager 2012-2015 for the implementation of individual measures



By using all potentials, annual energy delivery costs up to 250 Million € can be saved in 2050.

Measure of Climate protection concept: District of Rhein-Hunsrück saves electric power

Start in September 2014



Eine Aktion der Kreisverwaltung des Rhein-Hunsrück-Kreises und der Verbraucherzentrale Rheinland-Pfalz



Die Aktion ist gültig bis 30.11.2014

Jetzt bei der Verbraucherzentrale anmelden unter:
0800 60 75 600¹⁾

**JAHR FÜR JAHR
STROMKOSTEN
EINSPAREN**

Rhein-Hunsrück spart Strom – und wir helfen Ihnen dabei!
Unabhängige Energieberater bewerten Ihren Stromverbrauch und geben
nützliche Tipps. Und das mit nur 10,- bzw. 20,- €²⁾ Eigenanteil!

**Year in and year out
Saving electricity
costs**

Exchange of Pumps

Who has the oldest heating pump? **We give you the up-to-date heating pump!**



Exchange of Icebox

Who has the oldest icebox?
We give you the up-to-date icebox!



**outcome: meanwhile 40 Communities create energy saving concepts
for their citizens with public subsidies for privat invest**

Field of action energy saving: Communities create energy saving policies for their citizens

local congregation Schnorbach „Energy saving policy“

Start at May 2015



picture: Hearts & Minds / DifU

More than 40 communities followed the example of Schnorbach and gives subsidies to their inhabitants



Picture: Werner Dupuis

Within three years more than 22 communities offered LED changing days for their inhabitants

Horn: Photovoltaic and battery storage supply the LED-street lighting in whole community



picture: Energieagentur Rheinland-Pfalz



“In Horn the sun is shining also at night”

Not only private households – also SME are able to halve their energy costs

Best-Practice: „Gesundheitszentrum-Hunsrück Holger Merg GmbH“ (Health center)



- Three companies in one location
- Construction of the building in 1997
- Increase in 2005 and 2008
- approx. 130 employees



The concept: Three steps of action

- Conversion to LED-lighting
- Photovoltaic plant for internal consumption
- Base-load cogeneration unit (primarily for the sauna area)



Energy costs were halved

“Our motto is: Make the energy revolution suitable for everyday life!”
(Mr. Holger Merg)



Outlook: a new fermentable plant for biomass of the district own waste management company

Visualization of the plans – launch in the year 2021



- Use of the biomass of the kitchens 15,000 tons per year from private households
- Production of 10,000 tons of digestate/fertiliser
- Flexibel production of about 4,5 Million kWh electricity power per year (3,4 Million kWh feed in the grid)

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RHEIN-HUNSÜCK-KREIS



(Join-in!)
Mach mit!

richtig



Küchenabfälle



Papierböden und Zeitungspapier



Essenreste (auch Fleisch und Fisch)



Topf- und Zimmerpflanzen



Fallaub



Gartenabfälle Rasenschnitt, Vertikutiergut

Haben Sie Fragen?
RHE-Abfallberatung
Tel. 0 67 63/ 30 20 40



A lot of energy is hidden in district of Rhein-Hunsrück - we are making use of it!

The money of the
village shall remain
within the village!



Friedrich Wilhelm Raiffeisen (1818–1888),
founder of the worldwide-acting cooperative movement

Award by the National Agency for Renewable Energy in 2018:
„Energy-local authority of the decade“

RES
CHAMPIONS
LEAGUE
Renewable Energy Competition
between European cities and towns



Save with
your local
cooperative bank

**It always seems impossible
until it's done !**

Nelson Mandela

Thank you very much for your attention!