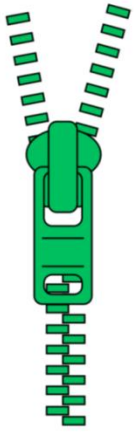
District administration of the
district of Rhein-Hunsrück

Becoming a reference region for climate protection and innovative energy systems:

the example of the Rhein-Hunsrück-Kreis

Renewable energies/
energy efficiency



Demographic change/
Public service

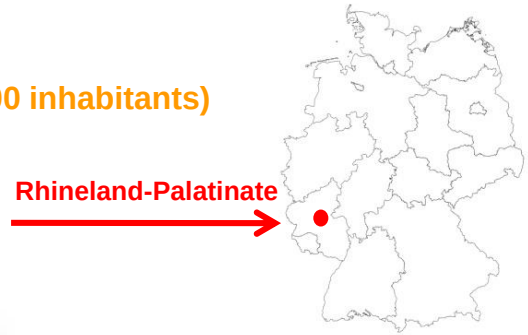
Ecologic Institut, webinar 4, on Tuesday, 30th January 2024

Referent: Landrat a.D. Bertram Fleck, Rhein-Hunsrück-Kreis

Introduction

District administration of the
district of Rhein-Hunsrück

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



Landrat a.D. Bertram Fleck
(Rhein-Hunsrück-Kreis)
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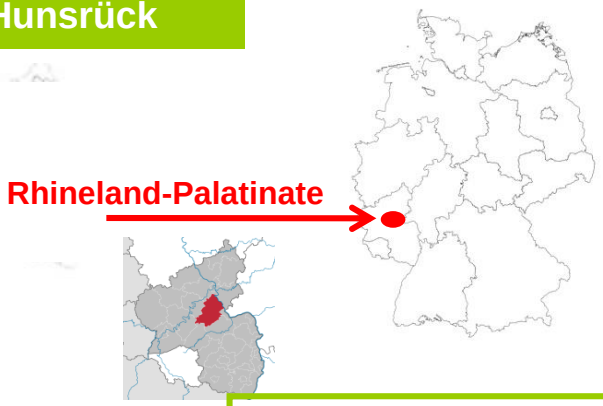
The target: we want to transfer 290 Mio. € of energy imports into regional value creation

District administration of the district of Rhein-Hunsrück

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

approx. 290 Million €



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

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

Target of our climate protection concept:

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

We convert energy import costs into regional jobs and value creation by way of energy efficiency and renewable energies!

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

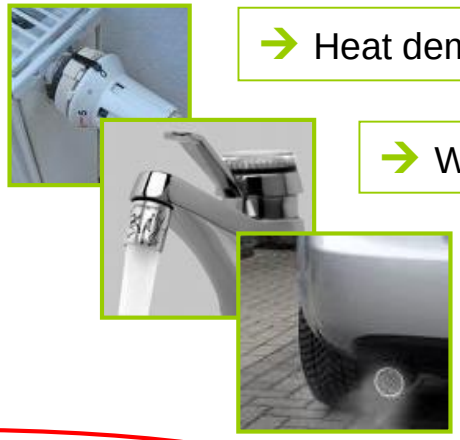
District administration of the district of Rhein-Hunsrück

Achievements of the energy controlling operating since 1999

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 %

Reduction of:



- → Heat demand by **25 %**
- → Water demand by **26 %**
- → CO_2 emissions **9.500 tons**
- → Cost savings **2.000.000 €**

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

→ **Energy efficiency is the sleeping giant**

Increase of:

- → Electricity demand about **25 %**

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%.

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

of district owned buildings by 2010

3. Example
Construction of energy generating buildings

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RHEIN-HUNSRÜCK-KREIS

Energy generating administration buildings

2009
awarded a national-wide
Energy Efficiency Prize

Building‘s orientation to the South

The mound of the Northern side constructed according to the **Passive House Standard**

Brine heat pump connected with ground heat collectors

Innovative control technology

PV installations (20,7 kWp) generate more electricity than needed for heating and ventilation: **Energy generating building**

Extracurricular learning center for environmental education

District administration of the district of Rhein-Hunsrück

Educational concept: Energy from regional sources

Extracurricular learning facilities

Learning stations:

Sun

Usage of PV

Biowaste

Methane is produced by bio-waste

Tree and shrub cuttings

Heat for school centers

Wind

Wind turbine for the generation of electricity

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

The share of renewable electricity in the district will probably be at 337% by the end of 2020

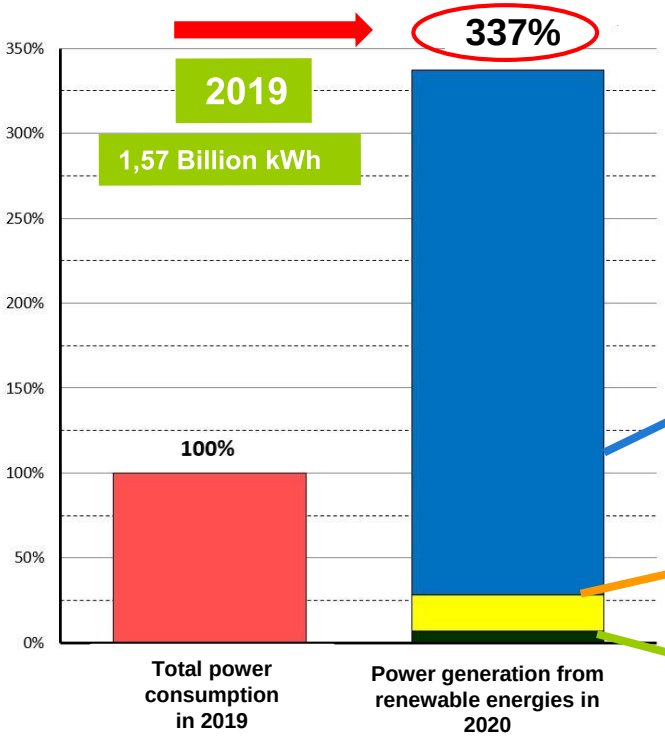
KREISVERWALTUNG
RHEIN-HUNSRÜCK-KREIS

informational:
Hydro power

Ø Federation
3,3 %

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

Total power consumption 466 Mio. kWh in 2019



278 turbines
712 MW capacity

6.500 plants
104 MW capacity

19 plants
6,6 MW capacity

Wind energy
308,88 %
Ø Federation 18,2 %

Photovoltaic
21,03 %
Ø Federation 8,9 %

Biomass
7,20 %
Ø Federation 8,9 %

Share of renewable energies: 337% Ø Federation 45%

At the end of 2020, 278 wind power stations have been operating in the district

District administration of the district of Rhein-Hunsrück

End of 2020:

278 wind power stations with a power of 712 MW are producing more than 1,57 billion kWh of renewable power per year

7,8 Million € of annual leasing income for the municipalities
1,6 Million € servicing costs
2,2 Million € feed-in tarif (only regional), 65 Million € regional invest costs in 20 years 216 Million € regional added value

17 biomass local heat networks in operation
Example: Material Flow Management

District administration of the district of Rhein-Hunsrück

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

Annual savings: 1.000.000 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)

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

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

District administration of the district of Rhein-Hunsrück

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

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

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

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

start of construction Spring 2015,
commissioning Summer 2016

picture: ibs Energie, Stromberg

source: Rhein-Hunsrück-Zeitung, 20.09.2016

site plan: ERS Simmern

Source pictures: Energieagentur Rheinland-Pfalz

Status June 2022:
17 biomass local heath 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

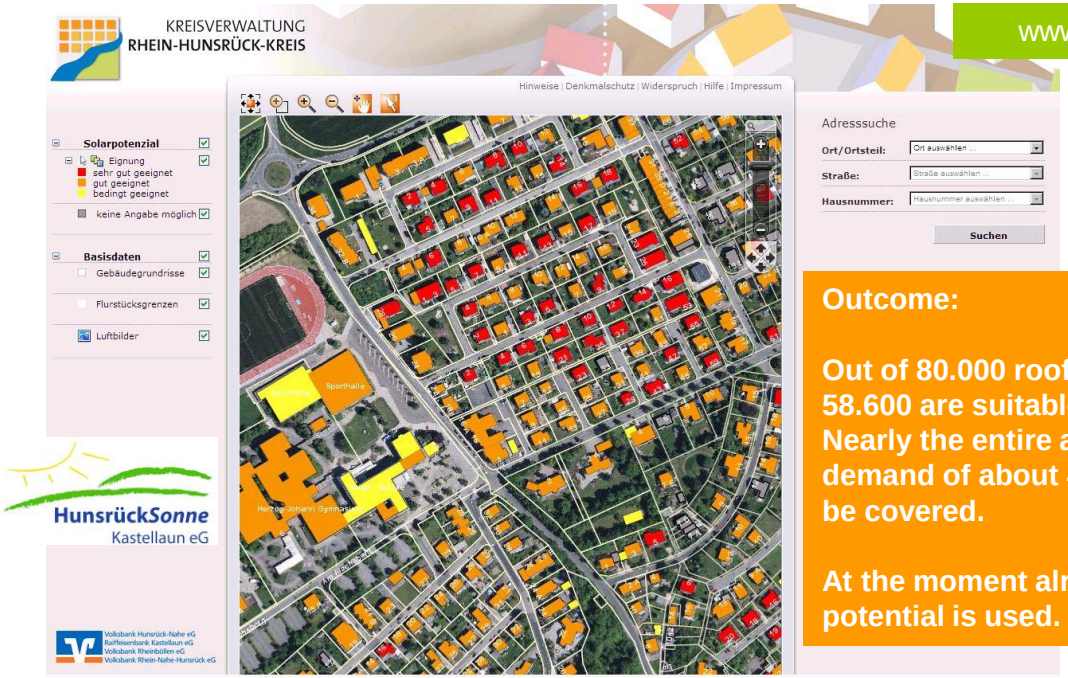
Roofs – Source of revenue
District administration as a role model

District administration of the district of Rhein-Hunsrück

Aim: 1000-roofs-photovoltaic-program – Result: 2.306 roof plants, today: 6.500

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

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 tarif (annual – for 20 years) :

20,8 Millionen €

Regional value creation: conservative measurements by the district

District administration of the district of Rhein-Hunsrück

Regional value creation from renewable energies (earnings)

	Total investment sum of all renewable energy plants	Regional value creation (earnings)	
		Thereof regional investment sum	Annual regional value creation
Sum in 2015	1.35 Billion €	Approx. 102 Million €	approx. 43.5 Million €

- Rental income and taxes for the local communities
- Feed-in remuneration for local operators
(private PV- plants and cooperatives)
- Orders for the domestic craft and construction companies
- New Jobs through maintenance orders
- Financing through local banks
- Development opportunities for local agriculturists and forest owners
- Additional volume of orders for Hotels and Restaurants

Regional value creation press echo

District administration
of the district of Rhein-
Hunsrück

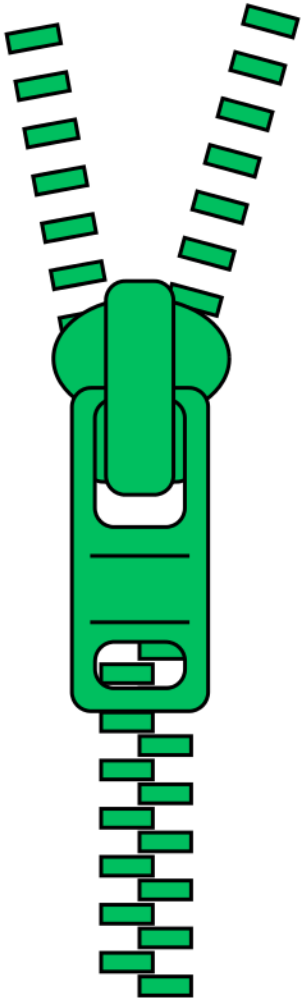
It is demonstrated by the district: With a lot of pragmatism and an inner conviction around 300 % of green energy are already produced in the district of Rhein-Hunsrück in 2015. Here the energy revolution is working as a giant program for the promotion of the economy.
- By Ralf Köpke

Quelle: E&M annual magazin of 2012

Public service and energy revolution: Recognation of interfaces and use!

District administration
of the district of Rhein-
Hunsrück

Renewable energies/ energy efficiency



Demographic change/ Public service

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

KREISVERWALTUNG
RHEIN-HUNSRÜCK-KREIS

Private wind- and solar parks on communal-owned areas

990 inhabitans

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

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...

Case example energy saving: Campain „Rhein-Hunsrück is saving electricity“

District administration of the district of Rhein-Hunsrück

A campaign of the district administration of the district of Rhein-Hunsrück and the consumer advice center of Rhineland-Palatinate

Start in September 2014

Interim conclusion in December 2015

Change of pumps

Who owns the oldest heating pump? We give you a new one!

Change of white goods

Who owns the oldest refrigerator? We give you a new one!

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

District administration of the
district of Rhein-Hunsrück

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 inhabitans

picture: Werner Dupuis

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

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”

Case example energy saving: Light bulb exchange

District administration of the district of Rhein-Hunsrück

Within 5 years already 26 of the district´s municipalities offered LED-exchange-days to their citizens!

Neuerkirch
Ein Dorf spart Energie
Ich mach mit!

LED-exchange days interim balance sheet :

33.088 illuminants from 2.427 households were exchanged free of costs for the citizens

Saving of energy annual: 724.500 kWh
Saving of energy costs annual: 217.000 Euro

Fotos: local congregation of Neuerkirch

networking: meanwhile 40 communities are creating energy saving concepts for their citizens

District administration of the district of Rhein-Hunsrück

Energy saving guideline of Schnorbach

Start in May 2015:
“nationwide unique pilot project“

Source: DifU / Hearts&Minds

Support of:

- Energy consulting
- Change of white goods
- Change of heating circulation pump
- Hydraulic adjustment

- Photovoltaic system
- Battery storage
- Building insulation
- Change of windows and doors
- Change of night storage heaters
- Installation of renewable heating systems
- Installation of ventilation systems
- New construction of a passive house

- 6000 € Maximum grant per household

Paid out aid money:	205.000 €
Investments of the citizens:	990.000 €

Climate-protection-concept: cooperation with consumer advice center and energy agency

KREISVERWALTUNG
RHEIN-HUNSRÜCK-KREIS

Consumer advice center State of Rheinland-Pfalz

Energy consulting

free energy consulting for all
private households

Five advise bases in district

Local newspaper

- Weekly application
- Serie **„Energy tip of the week“**
- Newsletter of the municipalities: advertising of energy consulting

Wirtschaft lokal NR. 229 · MITTWOCH, 2. OKTOBER 2013

Dachdämmung sollte wohl überlegt werden

Bauen Auch Schall- und Hitzeschutz gehören beachtet

Rhein-Hunsrück. Die Form eines Dachs wird bereits bei der Festlegung der architektonischen Grundausrichtung bestimmt. Die Wärmedämmung sollte optimal sein, denn diese wird man in den nächsten 30 Jahren sicher nicht ändern wollen. Und in 30 Jahren kann beim Energiepreis viel passieren. Bei Standardneubauten ist die Dachdämmung meist 16 bis 24 cm dick. Energiesparhäuser liegen meist bei 24 bis 30 cm und Passivhäuser haben etwa 40 cm Dämmstoff im Dach eingebaut.

Serie
Energietipp
Heute: Dämmen von Dächern

Wenn von Anfang an klar ist, dass der Dachraum auch künftig nicht für Wohnzwecke genutzt wird, sollte man immer die oberste Geschossdecke – also den Speicherboden – als wärmegedämmtes Bauteil vorsehen. Dies ist einfacher und kostengünstiger machbar als die Dämmung der Schrägen bis in den First.

Bei der Wahl des Dämmstoffs spielen neben der möglichst niedrigen Wärmeleitfähigkeit auch der Schallschutz und der sommerliche Hitzeschutz eine Rolle. Bei den letzten beiden Punkten haben flexible Dämmstoffmatten aus Glas- oder Steinwolle, aus Schaf- oder Baumwolle, aus Flachs oder Hanf sowie Einblasdämmstoffe aus Zellulose oder Steinwolleflocken Vorteile gegenüber plattenförmigen Dämmstoffen. Wichtig ist auch der Feuchteschutz der Dämmung von innen und außen. Zum äußeren Schutz kommt oft eine Unterspannbahn zum Einsatz. Eine Holzweichfaserplatte als äußerer Abschluss hat jedoch den Vorteil, dass sie stabiler ist und eine zusätzliche Dämmwirkung hat.

Fragen zur Neubauplanung sowie zum Energiesparen im Alt- und Neubau beantworten die Energieberater der Verbraucherzentrale Rheinland-Pfalz. Die Beratungsgespräche sind kostenlos. Die nächsten Sprechstunden finden wie folgt statt:

- in Simmern am Donnerstag, 24. Oktober, von 13.15 bis 17.45 Uhr, in der Verbandsgemeindeverwaltung, Brühlstraße 2. Anmeldung unter Tel. 06761/837 101.
- in Emmelshausen am Mittwoch, 16. Oktober, von 14 bis 17 Uhr, in der Verbandsgemeinde, Rathausstraße 1. Anmeldung unter Tel. 06747/121 33 oder 121 34.
- in Kirchberg am Mittwoch, 23. Oktober, von 13 bis 16 Uhr, in der Touristinformation, Raum 514, Marktplatz 5. Anmeldung unter Tel. 06763/910 512.
- in Boppard am Dienstag, 22. Oktober, von 13 bis 16 Uhr, in der Stadtverwaltung, Karmeliterstraße 2. Anmeldung unter Tel. 06742/103 59 oder -56.

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

District administration of the district of Rhein-Hunsrück

Climate-neutral mobility

2011 first public electric-filling-station in the district – goverment- 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).

New fermentable plant for biomass of the district own waste management company

District administration of the district of Rhein-Hunsrück

Launch in the year 2021

Quelle: Rhein-Hunsrück Entsorgung

- Use of the biomass of the kitchens 15,000 tons per year from private households
- Production of 10,500 tons of digestate/fertiliser
- Flexibel production of about 4,5 Million kWh electricity power per year (3,4 Million kWh feed in the grid)

German District Rhein-Hunsrück: Energy Transition - A Success Story

1995

- Energy import ratio: 100%
  Costs: €300m (≈13% BIP)
- Almost 100% fossil energy
- Unemployment rate 1995: 8,3%

2018

- Unemployment rate 2018: 3,5%
- Financial Zero-Emissions-District across the sectors power, heat & waste
- Renewable energies provide over 300% of power demand
- Annual revenue of €44m due to renewables
- Reserves of €84m held by municipalities
- Lowest debt level in the whole state
- Approx. 53% GDP-growth since 1999 (5% above state-wide average)

Sources: mueef.rlp.de, statistik.rlp.de (2017), statistik.rlp.de (2004), swr.de, dw.com, rhein-hunsrück.de

Hans-Josef Fell
Member of German Parliament (1998-2013)
President of Energy Watch Group

The Rhine-Hunsrueck district: Home of energy transition - deluders

District administration of the
district of Rhein-Hunsrück

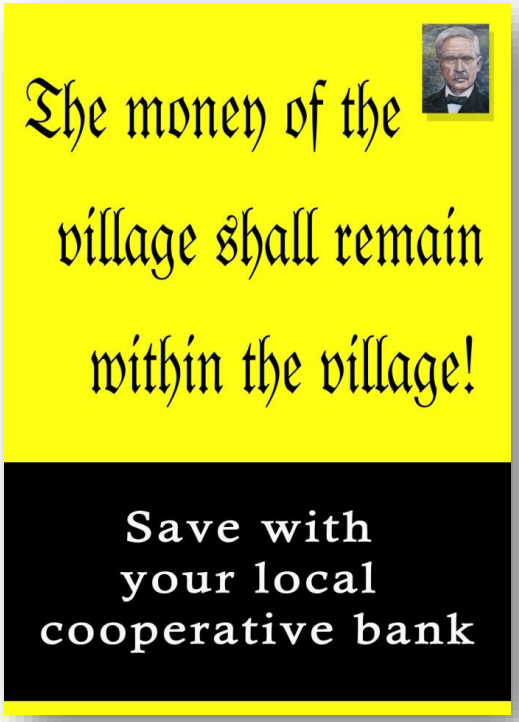
Referenzregion für Klimaschutz
Rhein-Hunsrück-Kreis

Since November 2018 online:

20 minutes documentary from Carl A. Fechner
(Producer of Climate Warriors / Power to Change / The 4. Revolution)

English subtitles: https://www.youtube.com/watch?v=l2lKbr0Trdo
Frensh subtitles: https://www.youtube.com/watch?v=ZGkyjnWOihg
Japanese subtitles: https://www.youtube.com/watch?v=MHzC42J0ZZE

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



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

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

RES CHAMPIONS LEAGUE
Renewable Energy Competition between European cities and towns

It always seems impossible until it´s done !

Nelson Mandela

Thank you very much for your attention!

SUCCESS FACTORS for implement climate protection activities

KREISVERWALTUNG
RHEIN-HUNSRÜCK-KREIS

1. Leaders with passion, courage, who can inspire others
2. Acceptance by political bodies, non-partisan work
3. Establishing networks and partnerships (farmers, craftsmen, cooperatives, schools, honorary mayors, full time mayors)
4. Involvement and participation of citizens (idol of the communities)
   Bulb replacement days, competitions oldest fridge and oldest circulation pump, save energy guidlines (energy consulting), presswork
5. Increase of acceptance though economic success (which is generated by regional added value)
6. Climate concepts and climate manager
7. Presswork, an article about climate protection appears every week in the regional newspaper

Why is it so much easier today…?

KREISVERWALTUNG
RHEIN-HUNSRÜCK-KREIS

- More information free of charge on the Internet
- Significantly more best practices for direct exchange
- More intergovernmental consulting services
- More consultancies and engineering firms
- More supply and lower prices, price erosion
- More IT tools and specialized software
- Growing funding programs
- Significantly more openness

ADVICE to others (everybody must find his own way, there is no royalroad to…)

KREISVERWALTUNG
RHEIN-HUNSRÜCK-KREIS

- Joyn forces with like-minded people
- Start with energy effenciency (secure approval)
- Learning at conferences and congresses
- Looking for examples, best practice, take over
- Focus on regional added value
- Citizen participation, small competitions for everybody (blub replacement days, oldest fridge and oldest circulation pump)
- Presswork
- Special offers for children and young people (extracurricular place of learning without marks, exams)