Introduction

District of Rhein-Hunsrück

- 102,000 inhabitants
  thereof 8,088 foreigners
  (12 from Japan)
- Area: 991 km²
- 137 settlements
  (75% with less than 500 inhabitants)

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(District of Rhein-Hunsrück)
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Presentations by leading local governments, Head of the district retired Mr. Bertram Fleck, September 07th, 2017, Nagano
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!

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
We started in 1999 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 €

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

Energy efficiency is the sleeping giant

Increase of:

- Electricity demand only about 5%

Despite doubling number of PC's, introduction of air-conditioned server, introduction of catering and of all-day-school.
Without additional measures of energy controlling the increase would have amounted to 30%.

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

of district owned buildings by 2010

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14 bio mass 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

Fuel: approx. 50% of the total material

High quality compost: approx. 50% of the total material

The second step:
Thermal processing in the central heating station with burning capacity of 500 to 850 kW

Fuel storage facility

Central heating station

Three bio mass heating networks in school centers:

22 school buildings, 8 sports halls, 1 town hall
2 indoor and 1 outdoor swimming pools,
1 library, 1 old people’s home

Annual savings

680,000 Liters
Fuel oil equivalent

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Roofs – Source of revenue
District administration as a role model

Target: 1000-roofs-photovoltaic-program – Result: 4.182 roof plants
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

Results:
Out of 80.000 roofs in the District 58.600 are suitable for PV. Nearly the whole annual power demand of about 468 Mio. kWh could be covered. At the moment already 16 % of this potential is used.

Presentations by leading local governments, Head of the district retired Mr. Bertram Fleck, September 07th, 2017, Nagano
Example Wind farm Ellern - 7.5 MW power: the highest-power plants on land worldwide

At the beginning of the 20th century wind-water mills were built in the Hunsrück in many local congregations.

1995: construction of the first modern wind turbine in the Hunsrück with a capacity of 600 KW. Annual production of 800,000 kWh renewable electricity per wind turbine.

2010: first Repowering-project in the Hunsrück - through that the electricity yield sextupled up to over 5 million kWh per wind turbine.

End of 2017:

268 turbines with 748 MW capacity will produce more than 1 billion kWh annual renewable power!

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The share of renewable electricity in the district probably will be at 298 % by the end of 2017.

Total power consumption 468 Mio. kWh in 2014

- **1,398 Billion kWh**
  - To the grid, approved and in construction in 2016
  - 16 turbines
  - 117 MW capacity

**2017**

- **298,58%**
  - In operation by the end of 2015

**Share of renewable energies:** 298 %  Ø Federation 32 %

- **Wind energy**
  - State by the end of 2015
  - 252 turbines
  - 631 MW capacity
  - 249,62 %
  - Ø Federation 11,0 %

- **Photovoltaic**
  - 16,73 %
  - Ø Federation 6,0 %

- **Bio mass**
  - 7,09 %
  - Ø Federation 7,8 %

Pilot project river turbines in the Rhine at St. Goar

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innogy is testing the future intelligent low-voltage-network with partners from the economy and science in practice since 2014

Local congregation Kisselbach (565 inhabitants) approx. 140 households are participating on the practice test

The ambitious target of the 46 project partners under the leadership of innogy is to be the „Blueprint“ for the energy revolution.
7. 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 by way of energy efficiency and renewable energies!

- 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
- Development opportunities for local agriculturists and forest owners

Regional value creation (earnings)

Thereof regional investment sum

Annual regional value creation

Approx. 102 Million €

approx. 43.5 Million €

Sum in 2015

Total investment sum of all renewable energy plants

1.35 Billion €

Sum in 2015

Approx. 102 Million €

approx. 43.5 Million €

Regional value creation (earnings)

Thereof regional investment sum

Annual regional value creation

Approx. 102 Million €

approx. 43.5 Million €

Demographic change/Public service

Renewable energies/energy efficiency

Presentations by leading local governments, Head of the district retired Mr. Bertram Fleck, September 07\textsuperscript{th}, 2017, Nagano
Extracurricular learning center for environmental education

Educational concept: Energy from regional sources

Learning stations:

- Sun
- Biowaste
- Wind
- Tree and shrub cuttings

Usage of PV

Methane is produced from bio-waste

Heat for school centers

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

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 amounting to 250 Million € can be saved in 2050.

Presentations by leading local governments, Head of the district retired Mr. Bertram Fleck, September 07th, 2017, Nagano
Measure of Climate protection concept: District of Rhein-Hunsrück saves electric power

Start in September 2014

Exchange of Pumps

Who have the oldest heating pump? We present you the up-to-date heating pump!

Exchange of Icebox

Who have the oldest Icebox? We present you the up-to-date Icebox!

Year in and Year out
Saving electricity costs

consequences: meanwhile 40 Communities create energy saving concepts for their citizens
Not only private households – also SME are able to halve their energy costs

Best-Practice: „Gesundheitszentrum-Hunsrück Holger Merg GmbH“

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

The concept: Three action steps

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

Energy costs were halved

“Our slogan for the topic energy is: Make the energy revolution suitable for every day life!“
(Holger Merg)

Presentations by leading local governments, Head of the district retired Mr. Bertram Fleck, September 07th, 2017, Nagano
Summary of our challenges and experiences

The way to a successful local energy revolution:

- Leaders with visions
- Full-time employees (Carers)
- Acceptance by political bodies
- Climate protection concept as guideline
- Taking the exemplary and guideline function serious as a commune
- Formation of local networks with communes, schools, agriculturists, craftsmen, architects, consulters, economy, …
- Involvement of the citizens through workshops, information and consulting offers
- The transition of citizens from consumers to producers “Prosumers”
- Establishing a systematically press and public work
- Support private citizens’ activities
- Offers special environmental education for children and citizens
- Participate at competitions
- Exchange with other municipalities and districts
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

It always seems impossible until it’s done!

Nelson Mandela

Thank you very much for your attention!

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