climate partnership

Bernburg
Borne
Leiria
Rheine
Trakai

Städtepartner übernehmen Klimaverantwortung

Twin cities take over responsibility for climate change

CONFERENCE REPORT

19. – 22.03.2014, LEIRIA

Bernburg Borne Leiria Rheine Trakai

V.i.S.d.P.
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Leiria, 16 May 2014

Mit Unterstützung des Programms
Europa für Bürgerinnen und Bürger der
Europäischen Union

With the support of the programme
Europe for Citizens of the European
Union

Gefördert durch:

Bundesministerium
für Umwelt, Naturschutz
und Reaktorsicherheit

aufgrund eines Beschlusses
des Deutschen Bundestages

German Federal Ministry for
Environment, Nature Conservation
and Nuclear Safety

Inhaltsverzeichnis/Content

1 Programm/Agenda

19th march 2014 | Wednesday

Miguel Franco Theatre	**Opening session**
09h30	- speeches by Mr. Raul Castro, Mayor of Leiria, Mrs. Ursula Schäfer-Rehfeld, Coordinator of the Project and by the Portuguese Secretary of State of Environment, Mr. Paulo Lemos
	Break
11h00	**Opening conference** by Mr. Filipe Duarte Santos (Physics Professor at the University of Lisbon and international specialist on climate change) - "Impacts and adaptation to climate change of Portugal"
12h30	**Lunch**
Miguel Franco Theatre	**Thematic sessions**
14h00	- Polytechnic Institute of Leiria (IPL): "Higher education in renewable energy in the IPL" – by Mr. Nuno Gil, | "Research projects in the field of Energy Efficiency and Renewable Energy", by Mr. Luís Neves | "Tackling the energy of waves: the SURGE project", by Mr. Sérgio Leandro - IrRADIARE, Science for Evolution: "Intermunicipal plan for Climate Change", by Mr. Marcos Nogueira

20th march 2014 | Thursday

09h00	Departure from the hotel
09h30	**Arrival at Secil Maceira-Liz cement production factory** | Visit and presentation
12h30	**Lunch**
13h30	**Visit to the Cibra-Pataias Factory**
14h45	Return to Leiria
15h15	**Visit** to the **Paper Mill Museum l presentation** by Enerdura of the existing system of power production trough water
16h15	Break
16h30	Visit to the **Environmental Interpretation Centre of Leiria | presentations** by the municipalities of **Bernburg** and **Borne**

21st March 2014 | Friday

09h00	Departure from the hotel
09h15	Santo Agostinho Garden – planting of a tree to celebrate the World Tree Day
10h00	**Valorlis** | Visit and presentation "Organic Valorization Central – Transforming residues into energy and soil corrector"
11h30	Departure to the North Residual Waters Treatment Station (ETAR Norte), property of Simlis
12h00	**ETAR Norte** | Presentation by AdP Energias "Production of solar photovoltaic energy at Simlis" | visit to the facility
13h00	**Lunch**
14h00	**Presentations** by the municipalities of **Rheine** and **Trakai**

2 Zusammenfassungen der Vorträge/Abstracts of the Presentations

Use of Renewable Energies in the Region of Bernburg – a Practice Report

Speaker	
Wechselberger, Tilo Salzland Administrative District Special Service for District and Business Development Karlsplatz 37 06406 Bernburg (Saale) Germany	0049 3471 6841790 Twechselberger@kreis-slk.de www.salzlandkreis.de
Diploma Geographer	

Topic

In Germany:
- The share of the renewable energies has tripled within 10 years of 2003 to 2013 (2013: second place behind brown coal as source of energy)
- At the renewable energies: the shares of wind, biomass and PV have risen steeply.
- Wind energy is the number 1 at the renewable energies

In Saxony-Anhalt (federal state):
- Since 2010 the renewable energies are the number one source of energy with a share of 39 %
- For example: The installed wind power in 2013 is almost as high as in Portugal 2011

In the Bernburg Region:
- The Salzland Administrative District is an important location for using renewable energies
- 32 Wind Parks with 388 turbines and a wind power installation of 627 MW (under this 49 large wind turbines with a height of 170 m and higher)
- 30 Solar Parks with an area of 190 hectare and a solar power installation of 94 MW
- 22 Biogas Plants with a bio energy installation of 27 MW
- Biogas Park Könnern produce about 23 million m³ bio natural gas
- 5 Hydro Energy Plants on the rivers Saale und Wipper

Result:
- The significance of the renewable energies increases steadily (Energy Turn).
- The available density of the existing plants (Wind, Solar) required a order in the context of the Regional Planning. Important is the spezification of Suitability areas and Pre-rank areas.
- The increasing plant height of the wind turbines represents a problem for the landscape.
- The regional creation of value of the renewable energies should be moved into the focus. A positive example is the municipal company SOLSA Solarenergie Sachsen-Anhalt in Bernburg which operates two solar parks and a wind park.
- At the moment, the consequences of the planned amendment of the Renewable Energies Law (EEG) aren't foreseeable yet.

Smart grids supporting teh Energy Supply

Speaker	
Gerard Bauhuis Cogas Rohofstraat 83 7605 AT Almelo	0546-836819 g.bauhuis@cogas.nl www.cogas.nl
Projectmanager sustainable energy	

Topic

Smart grids / (bio)gas networks

WindWest – The regional wind energy network

Speaker	
Mokdad, Yassine WindWest Heiliggeistplatz 2 48431 Rheine	+49 5971 – 800 66 60 yassine.mokdad@wind.west.de www.wind-west.de
(Diplom Geograph / Network Management)	

Topic

Network *WindWest*

WindWest is a triple-helix cluster approach which aims at promoting the strong regional economic sector wind energy as well as improving the sectoral business environment in the region around Rheine. Today, the Rheine-based network *WindWest* forms a platform for industrial enterprises, universities, local authorities and service providers.

The network was initiated in 2010. The economic development and promotion agency for Rheine (EWG) started a process involving the surrounding local authorities and wind energy enterprises in order to identify the potential for a specific wind energy network in the region. All partners - both in North Rhine Westphalia and in Lower Saxony – supported the idea of a regional network and provided means for a professional network management.

Since 2011 a two-person network management builds a cross-border platform which offers various services for the WindWest partners – foremost professional networking and matching with other enterprises, politicians, schools & universities and the population in the region.

WindWest stands for

- Interdisciplinary networking
- Active public relations
- Optimized infrastructure and framework
- Improving the availability of skilled personnel
- Acquisition of development funds and subsidies.

WindWest started with 8 partners in 2011 and consist of more than 40 contributing partners in the wind energy sector today.

Energy Transition - - *Projects and measures*

Speaker	
Christoph Ittermann Energie und Wasserversorgung Rheine Hafenbahn 10 48431 Rheine	+49 5971 45185 c.ittermann@swrheine.de www.stadtwerke-rheine.de
(profession /main occupation) Project engineer renewable energy	

Energy Transition - - *Projects and measures-*

(abstract of the presentation / summary > text max. until the end of this page)

Roughly two thirds of the global energy produced, 60 % of the water consumption and 70 % of the greenhouse gas emissions are accounted for by our cities. In Germany, some 75 % of the population lives in greater urban areas. Innovative and sustainable urban development, therefore, is the essential prerequisite for future generations.

"Turnaround in energy policy" is the key word. However, which sources of energy are viable and which are not? Are all available resources exploited? Which are the future-orientated concepts and strategies at community levels?

Renewable energy recourses of Trakai District Municipality

Speaker	
Inute Neverovskiene Trakai District Municipality Vytauto str. 33, Trakai, Lithuania, LT-21106	Tel. +370 (528) 55775, Faks. (528) 55524 inute.neverovskiene@trakai.lt (telephone, e-mail) www.trakai.lt (homepage)
Chief specialist/ ecologist (profession /main occupation)	

Topic

- We have a big potential to expand of using renewable recourses like landfill gas and solar energy.
- Biomass represents the most common source of renewable energy in Trakai District Municipality. In 2013 Renewable energy in Lithuania constituted 18,8% of the country's overall electricity generation. The Lithuania government aims to generate 23% of total power from renewable recources by 2020.
- Thermal energy of biomass is 3 times cheaper than natural gas.
- We see really big potential to increase renewable energy recourses and our priorities are the followings:
    - Reduce heat prices to competitive level
    - Resolve problem to comply with Europian Comission Stategy
    - Reduce CO2 emissions
    - Replace imported fuel and contributes to security of supply of energy.

3 Vorträge/Presentations

1.

AN OVERVIEW OF CLIMATE CHANGE IMPACTS AND ADAPTATION RESEARCH IN PORTUGAL

FILIPE DUARTE SANTOS

University of Lisbon
Research Center CCIAM - SIM
www.sim.ul.pt

Climate Partnership
Leiria, 19 March 2014

2ª Phase 2002-2006

SIAM II Project

- 26 Portuguese and International Research Institutions
- 60 Researchers
- 15 Reviewers

Both books are available online at
www.siam.fc.ul.pt

Climate change research and policy in Portugal

How to cite this article:
WIREs Clim Change 2014, 5:199–217. doi: 10.1002/wcc.258

Organization of the SIAM Project
12 Teams

Scenarios

- 20th Century Portuguese Climate and Climate Scenarios
- Socio-economic Scenarios
- Sociological Analysis

Climate Change Impact Assessments

Portugal
Project SIAM – Climate Change in Portugal. Scenarios, Impacts and Adaptation Measures

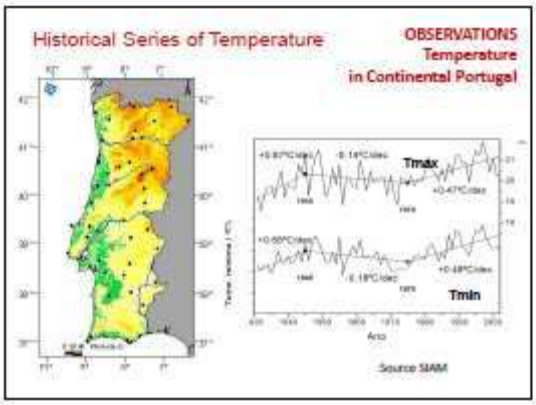
1ª Phase: 1999-2002

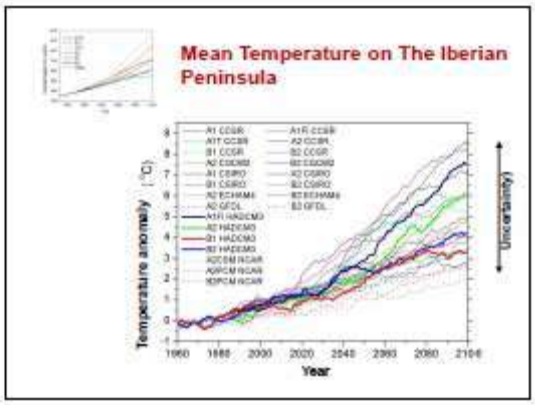
SIAM I Project

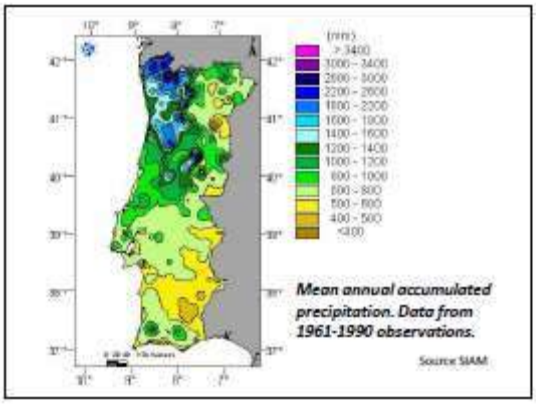
Impacts

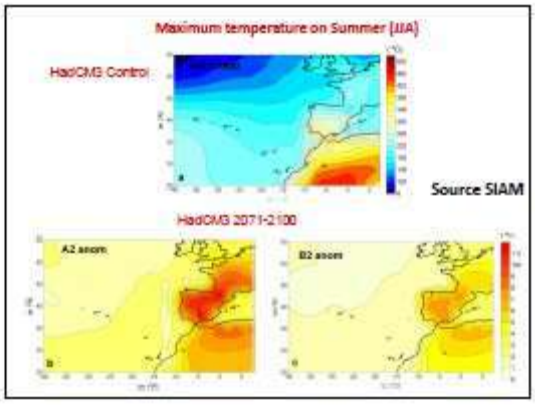
- Water Resources
- Coastal Zones
- Agriculture
- Human Health
- Energy
- Forests and Biodiversity
- Fisheries

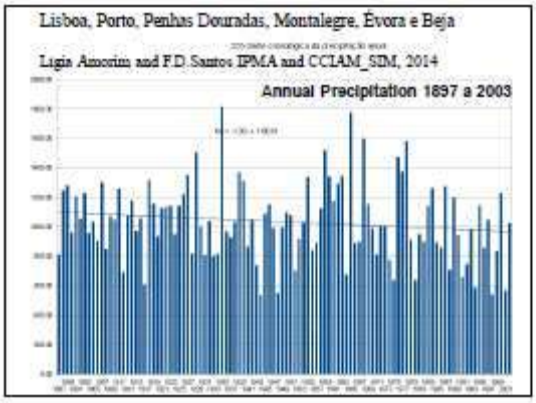
Case Study of the Sado River Basin
Outreach
This assessment report was the first for a Southern European country.

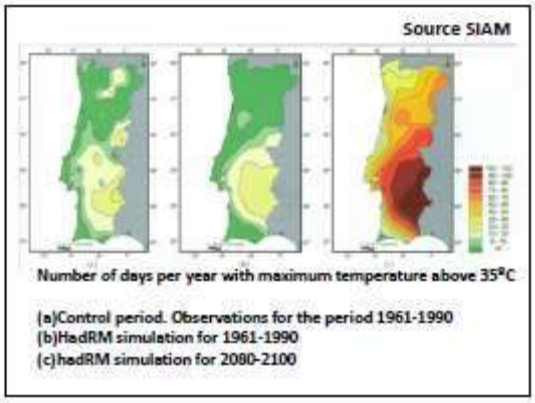

Historical Series of Temperature
OBSERVATIONS
Temperature
in Continental Portugal
Tmax
Tmin
Source SIAM

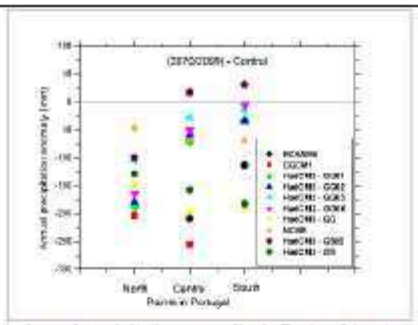

Mean Temperature on The Iberian Peninsula
Temperature anomaly (°C)
Year
Uncertainty


(mm)
> 3400
3000 - 3400
2800 - 3000
2200 - 2600
1800 - 2000
1600 - 1800
1400 - 1600
1200 - 1400
1000 - 1200
800 - 1000
600 - 800
500 - 600
400 - 500
<400
Mean annual accumulated precipitation. Data from 1961-1990 observations.
Source SIAM


Maximum temperature on Summer (JJA)
HadCM3 Control
Source SIAM
HadCM3 2071-2100
A2 anom
B2 anom


Lisboa, Porto, Penhas Douradas, Montalegre, Évora e Beja
Ligia Amorim and F.D.Santos IPMA and CCIAM_SDM, 2014
Annual Precipitation 1897 a 2003


Source SIAM
Number of days per year with maximum temperature above 35ºC
(a)Control period. Observations for the period 1961-1990
(b)HadRM simulation for 1961-1990
(c)hadRM simulation for 2080-2100



Annual precipitation anomalies in Portugal (western Iberia) obtained with the IPCC DDC GCM data

Source SIAM

Agriculture

- Decreases in the productivity of wheat, maize and rice. Productivity and quality of wine is likely to be variable acording to the region. Long term impacts on wine for $\Delta T>2^{\circ}C$ will be strongly and widely negative.
- 37% increase in irrigation water requirements; future irrigation will be constrained by reduced runoff, demand from other sectors, and by economic costs.
- Adaptation measures are needed to avoid the negative impacts of climate change:
  - Advances in the sowing date;
  - Select crop varieties better adapted to high temperatures and more resistant to water stress;
  - Migration of vineyards to higher altitude slopes, where possible
- Milder winters allow the cultivation of horticultural crops in regions where it is not possible at present.

Conclusions

The Portuguese observations are consistent with a pattern of global warming and rates of warming since the 1970s are above the global mean. Heat waves became more frequent.

There is a weak tendency for annual precipitation decrease and an anticipation of the rainy season with significantly lower precipitation in March.

Future scenarios indicate significant climate changes in Continental Portugal and also in the archipelagos of Azores and Madeira

Future warming is more pronounced in the continent and more moderate in the Azores. More frequent and pronounced heat waves are expected

The change in the precipitation regime is more severe in the continent (less annual precipitation and longer periods without rain) and in Madeira (less rain in winter) than in the Azores.

Forests

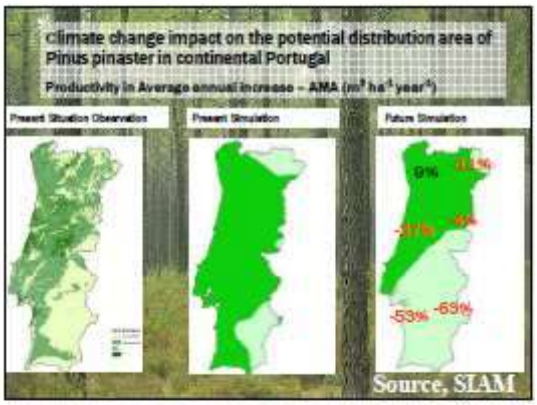
- Percentage of forest area in Portugal increase from 7 to 35.4% in the last 200 years and now accounts for 3.5% of the GNP
- IMPACTS
- Decline in productivity in most of the mainland territory and a NW shift of the physical optimal plant distribution in comparison to the present;
- Substantial increase in meteorological fire risk in the country, both in severity and in length of the fire season, particularly in the Continent and Madeira;
- Carbon sink strength in the future is likely to be lower than today;
- Biotic invasions are very likely to be favored by climate change.

Water Resources

- Progressive reduction in the annual river runoff during the 21st century;
- Runoff reduction is larger in the south thereby increasing the current spatial asymmetry of water availability in Spain and Portugal;
- The concentration of precipitation in winter and the estimated general increase in the frequency of heavy precipitation events is likely to increase the number and severity of floods, particularly in the northern part of the Iberian Peninsula.
- Water quality will be degraded by higher water temperatures and by river flow reduction in the summer, particularly in the south;
- Water management authorities must consider climate change as a decision variable.

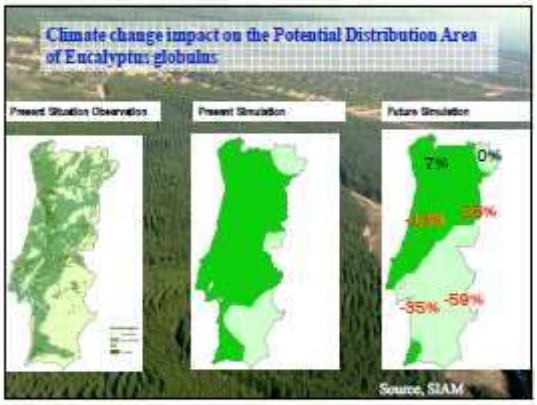
- Strong increase in the meteorological risk of forest fires;
- Increase in the duration of the annual period of high risk;
- The repetitive return of fires may prevent the sustainability of the present forests.

Forest fire at Serra de Monchique, Algarve, in 2003



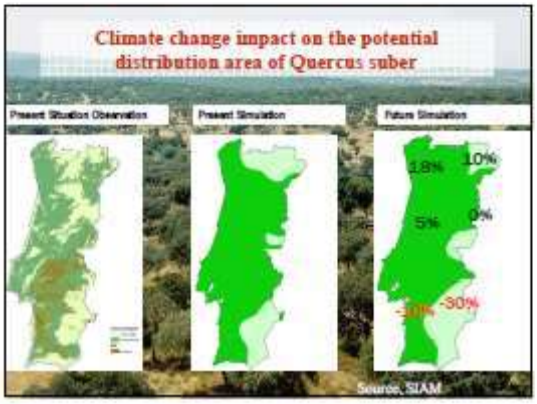
Adaptation Measures

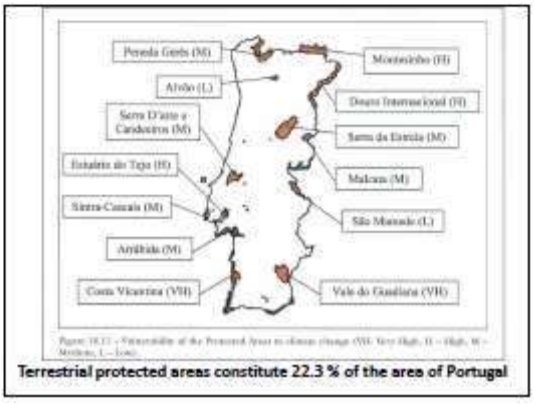
- Adopt an adaptive forest management
- The choice of the species should take into account the local productive potential, especially the length of the growing season and the duration of the dry period.
- The genetic improvement program should promote the adaptation to higher temperatures and larger water stress, especially to species with large economic importance (cork, pine trees and eucalypt)
- The forestation actions must be planned taking into account the fire risk.
- In a high fire risk environment the management policies need to focus more on prevention, which has smaller costs, than on fire combat.



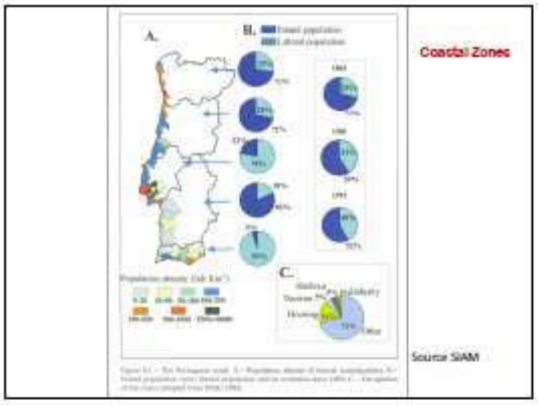
Biodiversity

- Some of the present biodiversity in protected areas will be under increasing environmental stress and some landscapes (e.g., some of the "montado" areas) will be disloged and modified under the future climate scenario.
- Populations that have limited geographical distributions, small habitat areas, or low number of individuals, are more vulnerable to rapid climate changes. Extinction may occur in populations with low reproductive and dispersal capacity. In some cases, however, the effects of land use changes induced by human society are likely to override the long-term effects of climate change on biodiversity.



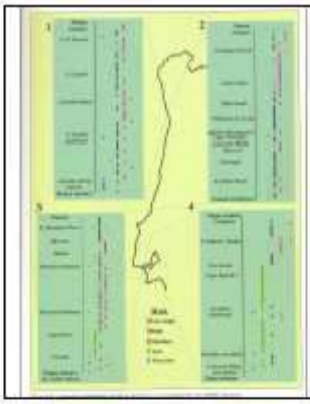


Terrestrial protected areas constitute 22.3 % of the area of Portugal

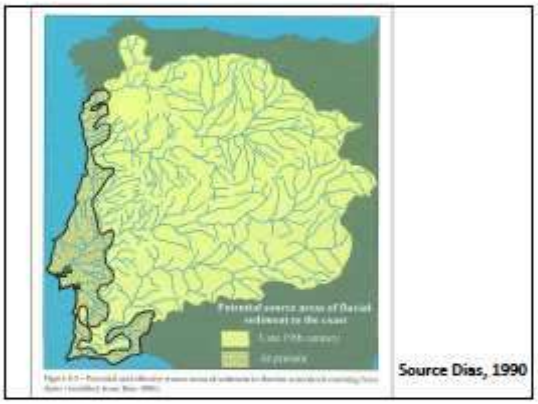


Coastal Zones

Source SIAM

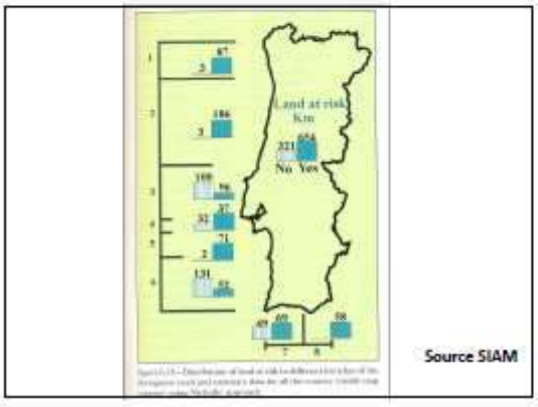


Longshore distribution of risk, SIAM Project



Source Dias, 1990

Longshore distribution of risk, SIAM Project

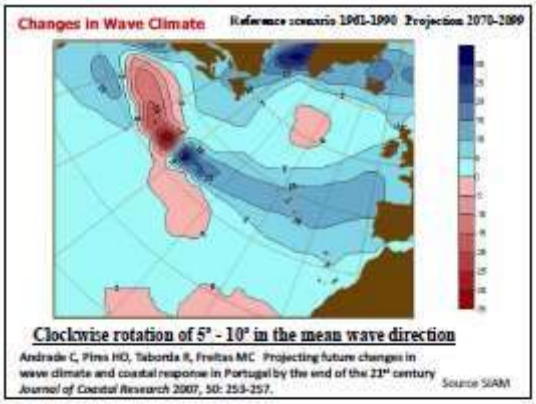


Source SIAM

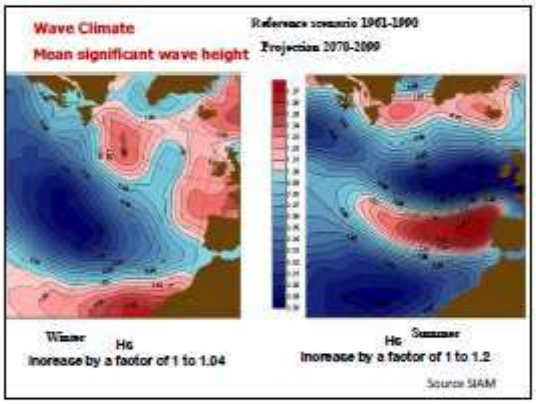
Table 6.9 – Possible adaptation strategies to sea level rise in Portugal.

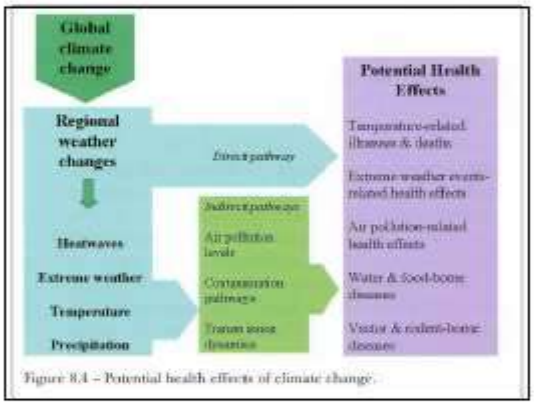
		Points observed	%
Land at risk	Risk of land loss	601	67.0
	No risk of land loss	296	33.0
Strategies	Action	217	24.2
	No action	679	75.8
Type of action	Port upgrade	11	1.2
	Groins	4	0.45
	Seawalls	80	8.9
	Retreat	39	4.3
	More than one	83	9.2

Source SIAM

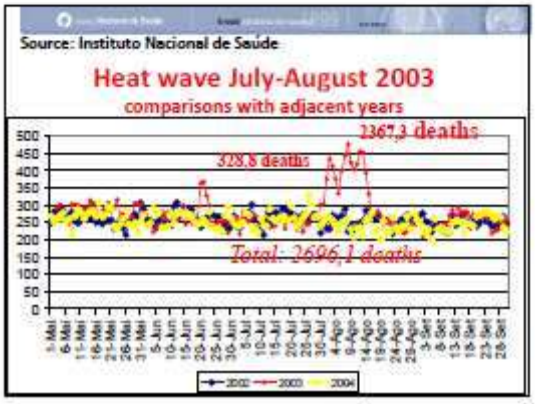

Changes in Wave Climate
Reference scenario 1961-1990 Projection 2070-2099
Clockwise rotation of 5° - 10° in the mean wave direction
Andrade C, Pires HO, Taborda R, Freitas MC Projecting future changes in wave climate and coastal response in Portugal by the end of the 21st century Journal of Coastal Research 2007, 50: 253-257.
Source SIAM


Effects on Human Health
National Assessment of Human Health Effects of Climate Change in Portugal: Approach and Key Findings
Environmental Health Perspectives 2006, 114: 1950-1956. DOI: 10.1289/ehp.8431
ehp


Wave Climate
Mean significant wave height
Reference scenario 1961-1990
Projection 2070-2099
Winter
Hs
Increase by a factor of 1 to 1.04
Summer
Hs
Increase by a factor of 1 to 1.2
Source SIAM

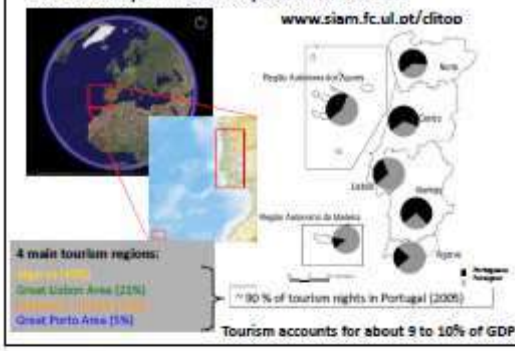

Global climate change
Regional weather changes
Heatwaves
Extreme weather
Temperature
Precipitation
Direct pathway
Indirect pathways
Air pollution levels
Contamination pathways
Vector-borne diseases
Potential Health Effects
Temperature-related illnesses & deaths
Extreme weather events-related health effects
Air pollution-related health effects
Water & food-borne diseases
Vector & rodent-borne diseases
Figure 8.4 – Potential health effects of climate change.


Change in the way we live and plan the coast: stakeholders discussions on future scenarios and adaptation strategies
ABSTRACT
Journal of Coastal Research, Special Issue No. 65, 2013
Schmidt L, Pinto P, Santos T, O'Riordan T, Gomes C Adapting governance for coastal change in Portugal
Land Use Policy 2013: 314–325. DOI: 10.1016/j.landusepol.2012.07.012


Source: Instituto Nacional de Saúde
Heat wave July-August 2003
comparisons with adjacent years
2367,3 deaths
328,8 deaths
Total: 2696,1 deaths
2003
2004

CLITOP – Climate Change and Tourism in Portugal: Potential Impacts and Adaptation Measures

www.siam.fc.ul.pt/clitoo



Tourism accounts for about 9 to 10% of GDP

- CLIMAAT II, Clima e Meteorologia dos Arquipélagos Atlânticos, Impactos e medidas de adaptação às alterações climáticas no Arquipélago da Madeira, Santos FD, Aguiar R. eds., Direcção Regional do Ambiente da Madeira, Funchal, 2006, http://www.sra.pt/files/PDF/Destaques/Brochura CLIMAAT II MadeiraFINAL.pdf,

- One of the major outcomes of CLIMAAT II was to alert to the increase in the risk of dengue fever in the island of Madeira since the competent vector was introduced in 2004 in the capital, Funchal, and the warming climate was becoming more favourable for its development.

- Recommendations were made to monitor and control the population of *Aedes aegypti* in Madeira. Nevertheless, dengue appeared in October 2012 and the number of infected persons reached more than 1800 within less than two months. The situation is much better now.

- Cruz MJ, Aguiar R, Correia A, Tavares T, Pereira JS, Santos FD Impacts of climate change on the terrestrial ecosystems of Madeira *International Journal of Design and Nature and Ecodynamics* 2009, 4: 413-422. DOI: 10.2495/DNE-V4-N4-413-422

Conclusions from Future Scenarios for Tourism in Portugal

- Shifts in comfort levels in line with projected changes
- Regional changes may be significant in the mid- to long- term
- Overall thermal comfort profiles and thresholds aren't expected to change dramatically fast (except for extreme events)
- Summer months might experience the most significant impacts
- Lengthening of summer period in all 4 regions
- Winter and shoulder months can gain space for promotion and increase activities in all 4 regions
- Careful attention should be paid to Algarve (*summer heat stress*) and Porto (*all year round increase comfort possibilities*).
- Relatively small changes in the short-term allow time to analyse and adapt in the middle and long term

VIA Projects at the Sectorial and Private Levels

- The project **ADAPTACLIMA-EPAL** aims to provide to the LISBON WATER FACILITY - Empresa Portuguesa das Águas Livres (EPAL) an adaptation strategy in the medium and long term to reduce the vulnerabilities of their activities to climate change.

Increasing competition between the domestic and energy use of water, particularly at the Castelo do Bode dam

http://siam.fc.ul.pt/adaptaclima-epal/?lang=en

- **CIRAC – Flood Risk and Vulnerability in Climate Change Scenarios**

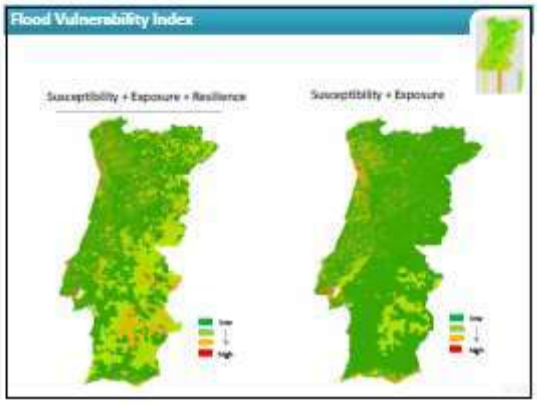
Small scale (1m) mapping of flood risk in 5 locations: Porto, Gaia, Coimbra, Algés and Baixa de Lisboa
http://siam.fc.ul.pt/cirac/

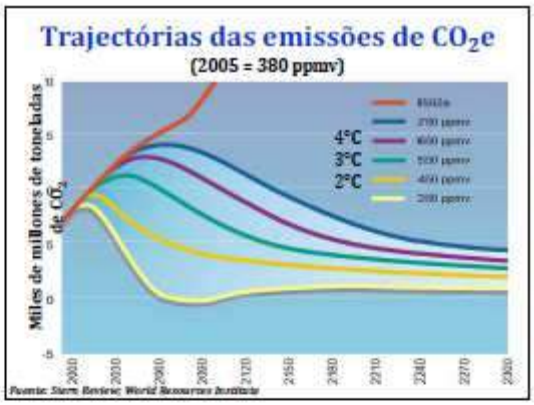
Vulnerabilities, Impacts and Adaptation at the regional and local levels

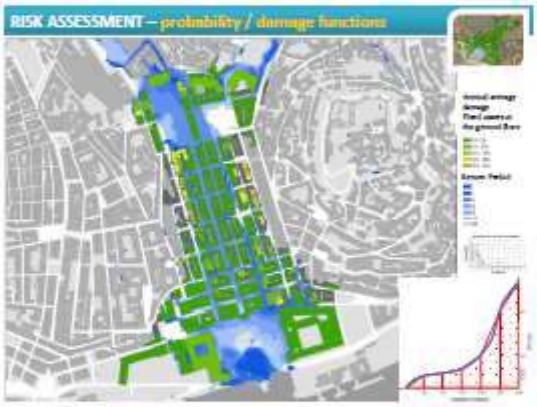
SIAM – **Sintra**, Strategic Plan for Adaptation and Mitigation of Climate Change in the Sintra Municipality, Câmara Municipal de Sintra, 2009, http://www.siam.fc.ul.pt/siam-sintra/ (available online)

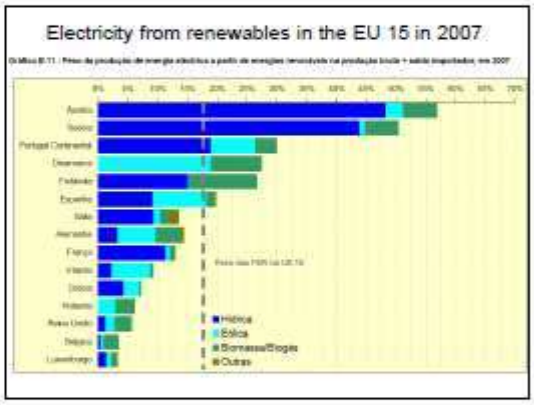
SIAM – **Cascais**, Strategic Plan for Adaptation and Mitigation of Climate Change in the Cascais Municipality, Câmara Municipal da Cascais, 2010, http://www.siam.fc.ul.pt/PECAC/ (available online)

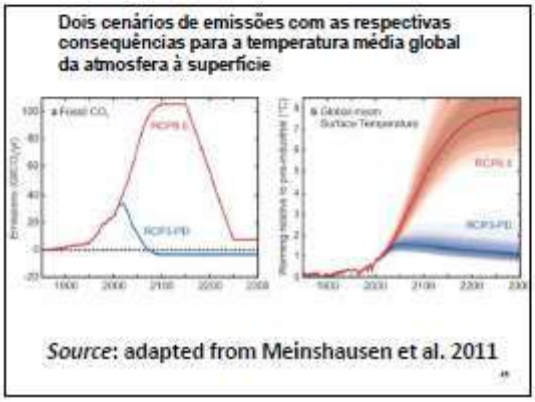
ELAC – Estratégia Local para as Alterações Climáticas – **Almada**, http://www.m-almada.pt/portal/page/portal/AMBIENTE/ENERGIA_EF_ESTUFA?lamb=0&ambiente_energia_estufa=12899982&cboui=12899982

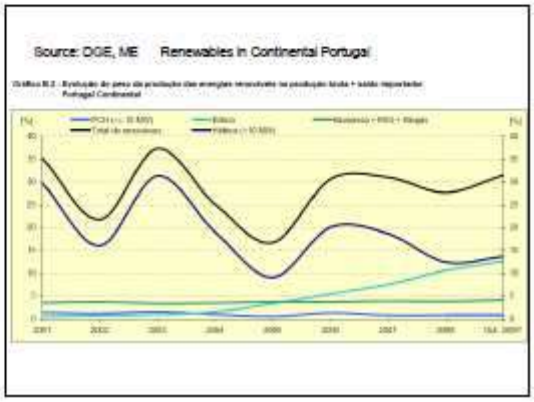



Trajectórias das emissões de CO_2e
(2005 = 380 ppmv)
Miles de milhões de toneladas de CO_2
4°C
3°C
2°C

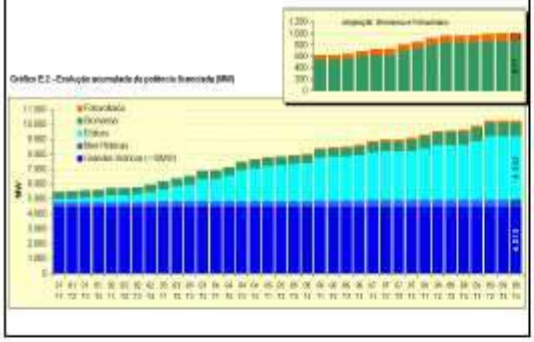

RISK ASSESSMENT – probability / damage functions


Electricity from renewables in the EU 15 in 2007
Hídrica
Eólica
Biomassa/Biogás
Outras


Dois cenários de emissões com as respectivas consequências para a temperatura média global da atmosfera à superfície
Source: adapted from Meinshausen et al. 2011


Source: DGE, ME Renewables in Continental Portugal

Evolution of renewables power installed capacity in Portugal from 2001 to 2009 in MW



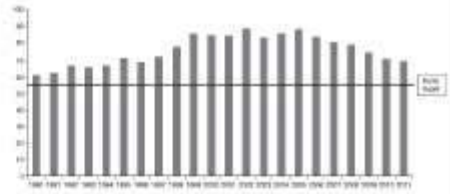


FIGURE 2 | Greenhouse Gas emissions (CO_2 equivalent) in Portugal (1990–2011), Tg (million tons). Source: Ref [1].

Evolution of wind power installed in Continental Portugal in MW

In 2013, 60% of the electricity in Portugal had its origin on renewable energy.

An increase of 20% relative to 2012

In January 2014 due to exceptional storminess generation of renewable energy from renewables could have accounted for 91% of the demand!

However there are dificultires in the electricity connections from Portugal and Spain to Central and Northern Europe

Contribuição das Renováveis para a diminuição da dependência energética

Renewable Energy

Renewable energy technologies in Portugal made up 24.6% of total final energy consumption in 2010, placing Portugal in a good position to meet its 2020 goal of 31%. The electricity sector also exhibits a high proportion of renewable generation, but this proportion has been inconsistent in recent years. Almost 36% of final electricity consumption was from renewable sources in 2003, but this dropped to 16.5% in 2005 before climbing to 2010's value of 49.9% (Eurostat, 2013). According to APREN(Quercus (2012), renewables accounted for 46% of total electricity production in 2011, and according to the Directorate General for Energy and Geology (DGEG) at the Ministry of Economy, Innovation and development, from January to November 2012 electricity produced from renewable sources declined compared to the same period in 2011 due to a decrease of hydropower. However, there was an increase in the participation of wind and photovoltaic (DGEG, 2013).

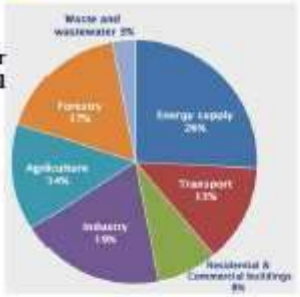
Electricity generation from RES is promoted in Portugal through a feed-in tariff (FiT). Most of the tariffs were defined in 2007 and are applicable to renewable technologies (except large hydropower plants) for a certain timeframe (i.e., 7, 12, 15, 20, 25 or 35 years) or until an upper limit of production is reached, whichever occurs first. Currently, a new regime for the remuneration of RES-E is under discussion (*) and it is likely that the system will be changed from FITs to a market regime (Eclareon 2013).

Energy Networks

The reduced interconnection capacity between Portugal and Spain is aggravated by the limited interconnection capacity between Spain and France, which prevents the export of electricity out of the Iberian Market and limits the development of renewable electricity projects in Portugal (Eclareon 2013). The National Transmission Grid Development and Investment Plan (PDIRT) (**) for the period 2012–2017 was available for public consultation in 2011 and no relevant changes in the plan were identified in the past six months.

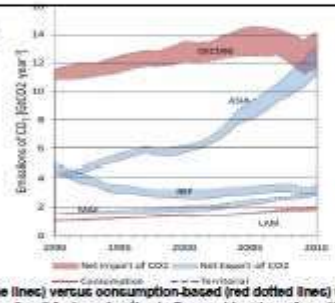
Source: IPCC (2007). Based on global emissions from 2004. Details about the sources included in these estimates can be found in the *Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*.

Emissões por sector a nível global

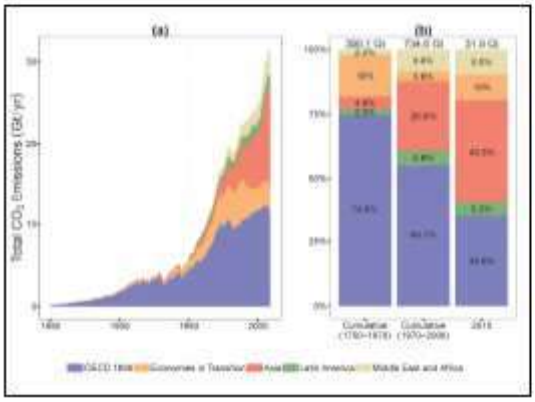


THANK YOU FOR YOUR ATTENTION

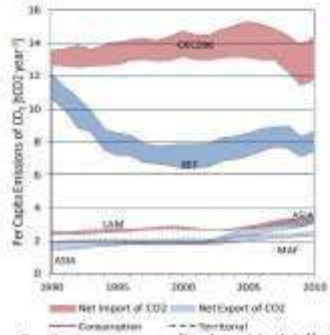
IPCC AR6



Territorial (blue lines) versus consumption-based (red dotted lines) CO2 Emissions from fossil fuel combustion in five world regions, from 1990 to 2010. The red areas indicate that a region is a net importer of embedded GHG emissions. The blue area indicates a region is a net exporter of embedded GHG. Regions include: OECD90 (OECD1990 countries), EIT/REF (Economies in Transition/ Reforming Economies), LAM (Latin America and Caribbean), MAF (Middle East and Africa), ASIA (Asia).



IPCC AR6



Territorial (blue lines) versus consumption-based (red dotted lines) CO2 Emissions from fossil fuel combustion in five world regions, from 1990 to 2010.

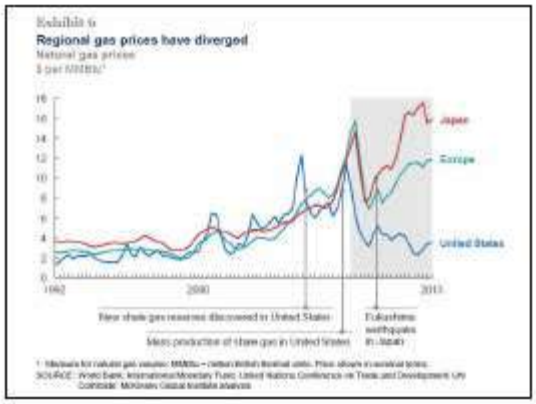
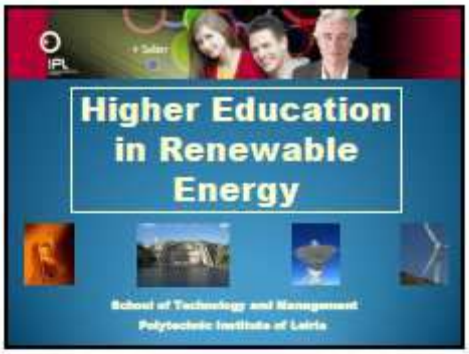
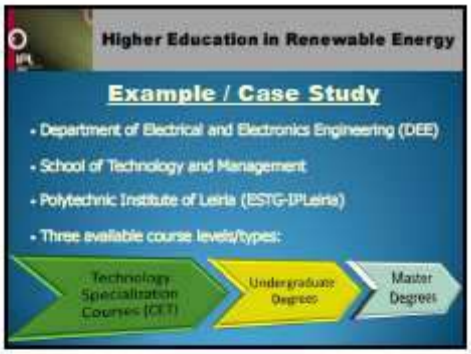


Exhibit 6
Regional gas prices have diverged
Natural gas prices
$ per MMBtu[1]
Japan
Europe
United States
1992
2000
2013
New shale gas reserves discovered in United States
Mass production of shale gas in United States
Fukushima earthquake in Japan


United States
Australia
Russian Federation
Korea, Rep. of
United Kingdom
Ireland
Malaysia
Japan
France
Greece
China
Mexico
India
Brazil

2.


Higher Education in Renewable Energy
School of Technology and Management
Polytechnic Institute of Leiria


Higher Education in Renewable Energy
Example / Case Study
• Department of Electrical and Electronics Engineering (DEE)
• School of Technology and Management
• Polytechnic Institute of Leiria (ESTG-IPLeiria)
• Three available course levels/types:
Technology Specialization Courses (CET)
Undergraduate Degrees
Master Degrees


DEE Courses
Technology Specialization Courses
(Cursos de Especialização Tecnológica – CET)
Technology Specialization Courses (CET)
Undergraduate Degrees
Master Degrees


Technology Specialization Courses (CET)
CET – Description
• Post-secondary technical education;
• Level IV professional qualification;
• Typical 18 month duration, with one semester of internship;
• CET also establish a specific path of access to Higher Education courses.


Technology Specialization Courses (CET)
• CET - Renewable Energies
• CET - Energy and Automation
• CET - Electronics and Telecommunications

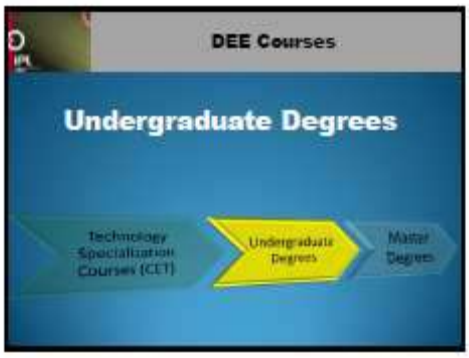

Technology Specialization Courses (CET)
CET – Renewable Energies
• Plan, configure and select renewable energy systems;
• Conduct periodic checks and routine system maintenance;
• Technical support, fault finding and system repair;
• Select, acquire and supply equipment and renewable energy system components.


Technology Specialization Courses (CET)
Some of the available modules
• Introduction to Electrical Machines
• Instrumentation and Industrial Control
• Power Electronics
• Electrical Installations and Automation
• Rational Use of Energy
• Renewable Energies I (135h)
• Renewable Energies II (135h)

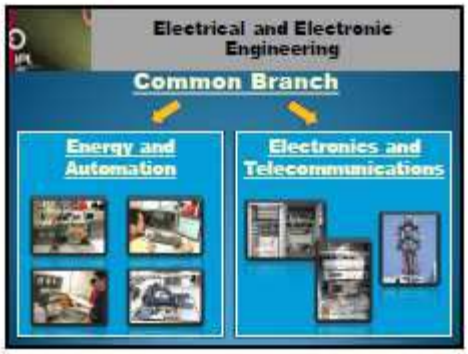

Technology Specialization Courses (CET)
Renewable Energies I
• Energy Conversion and Storage
• Hydro Power Systems (Mini and Micro)
• Wind Energy
• Biomass and Bioenergy


Technology Specialization Courses (CET)
Renewable Energies II
• Solar PV Energy
• Solar Thermal Energy
• Other Renewable Sources (e.g., Ocean Energy)
• Applicable Legislation (specific to Portugal)


Technology Specialization Courses (CET)
Workplace Training (Internships)
• Palser
• EST
• Juve Lis
• INESC Coimbra
• ESTG - IPLeiria
• Grupo EDP
• EDA - Electricidade dos Açores
• Grupo REN
• BELECTRIC Trading GmbH (Germany)
PALSER
BELECTRIC
EDA
REN


DEE Courses
Undergraduate Degrees
Technology Specialization Courses (CET)
Undergraduate Degrees
Master Degrees

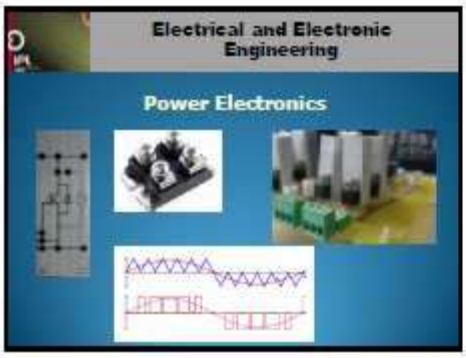

Electrical and Electronic Engineering
Electrical and Electronic Engineering


Electrical and Electronic Engineering
Common Branch
Energy and Automation
Electronics and Telecommunications

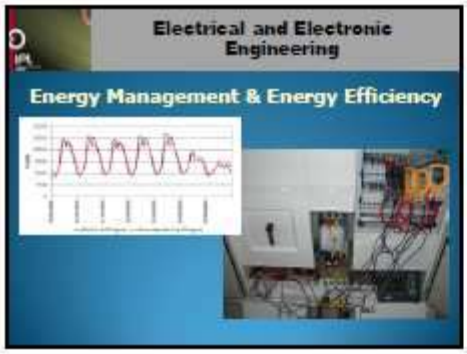

Electrical and Electronic Engineering
Energy and Automation

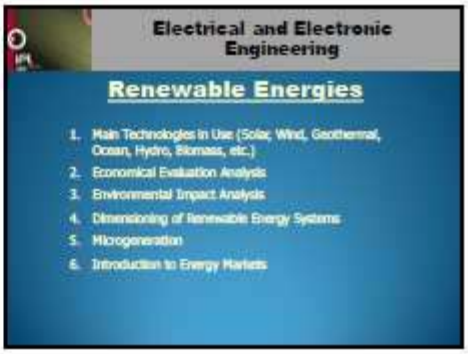

Electrical and Electronic Engineering
Some of the available classes
• Renewable Energy
• Electrical Installations
• Power Generation, Transmission and Distribution
• Energy Management
• Industrial Automation
• Electrical Machines
• Power Electronics


Electrical and Electronic Engineering
Electrical Machines


Electrical and Electronic Engineering
Power Electronics

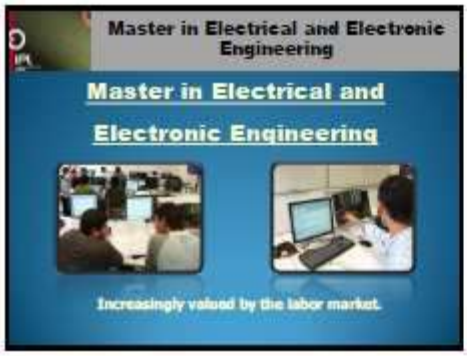

Electrical and Electronic Engineering
Electrical Installations


Electrical and Electronic Engineering
Energy Management & Energy Efficiency


Electrical and Electronic Engineering
Renewable Energies
1. Main Technologies in Use (Solar, Wind, Geothermal, Ocean, Hydro, Biomass, etc.)
2. Economical Evaluation Analysis
3. Environmental Impact Analysis
4. Dimensioning of Renewable Energy Systems
5. Microgeneration
6. Introduction to Energy Markets


Electrical and Electronic Engineering
Renewable Energies
Energy Laboratory


DEE Courses
Master Degrees
Technology Specialization Courses (CET)
Undergraduate Degrees
Master Degrees


Master in Electrical and Electronic Engineering
Master in Electrical and Electronic Engineering
Increasingly valued by the labor market.

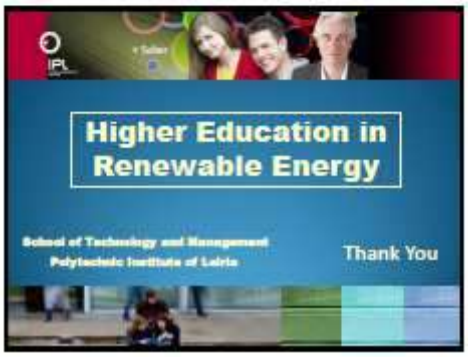

Master in Electrical and Electronic Engineering – Specialization Areas
Common Branch
Energy and Automation
Electronics and Telecommunications


Master in Electrical and Electronic Engineering
Some of the available classes
• Applications of Renewable Energies
• Electrical Power Systems
• Simulation and Optimization Methods
• Transients and Power Quality


Master in Electrical and Electronic Engineering
Applications of Renewable Energies
Advanced Topics on:
• Solar PV and Thermal
• Wind Energy
• Hydro Power
• Ocean Energy
• Bioenergy
• Energy Storage Devices
• Other Sustainable Sources
PowerWorld
MATLAB
SIMULINK


Professional Associations
75/OE


Higher Education in Renewable Energy
Some Employers


Higher Education in Renewable Energy
School of Technology and Management
Polytechnic Institute of Leiria
Thank You

3.

Research projects in the area of Energy Efficiency and Renewable Energy

Luís Neves
Coordinating Professor

IPL

climate partnership

Examples of Research in the area of Energy Efficiency and Renewable Energy

Research at the PoL Institute of Leiria (IPL)

- Local R&D units:
  - INESCC-DL, IT-DL, CDRSP, CIIC, GIRM, ...
- Research by Professors of the IPL in external R&D units
- Research conducted with students (MSc and BSc thesis), not always framed by R&D units, frequently under contracts with 3rd party entities.

Research on Smart Grids

- The Energy Box challenge
- Demand-Response: Estimating the size of the resource
- Viability and cost-effectiveness of distributed storage
- Short-term demand forecasting
- Optimal reconfiguration of networks
- Islanded Multi-MicroGrids Operation

Common objective:

To tackle the intermittent nature of renewable sources

Example of a local R&D unit: INESCC Delegation

- 2 main groups
  - Energy Systems and Policy
  - Decision Support

Non for-profit institution, shared by Universities, Polytechnic institutes and Companies

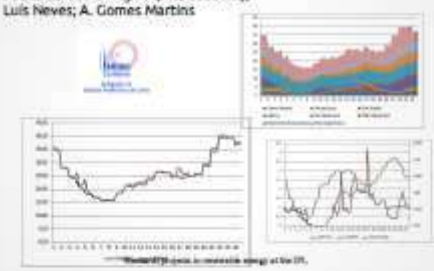
Shared by the University of Coimbra, the Polytechnic Institute of Leiria and the INESC

The Energy Box challenge

- Objective: Development of an automated Demand-Response device for domestic use
- A MIT-Portugal project

Demand-Response: Estimating the size of the resource

Pedro Carvalho Miguel (PhD student);
Luis Neves; A. Gomes Martins

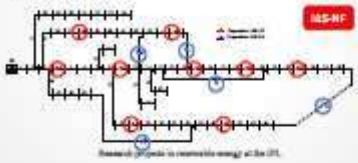


Optimal reconfiguration of networks

Romeu Vitorino; Luis Neves; Humberto Jorge

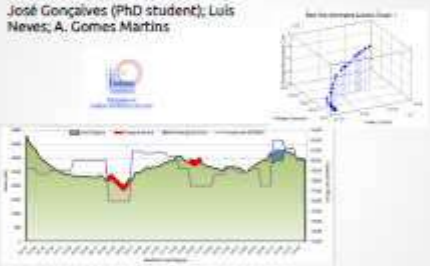
Objective: to find optimal configurations of distribution networks regarding losses and reliability

- An important feature to adapt networks to dynamic operations



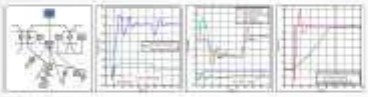
Viability and cost-effectiveness of distributed storage

José Gonçalves (PhD student); Luis Neves; A. Gomes Martins



Islanded Multi-MicroGrids Operation
A Key issue for the Development of the SmartGrid

Nuno Gil; J. Peças Lopes



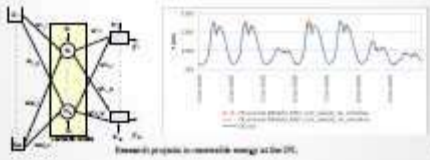
- Objectives:
  - Develop alternative frequency control strategies (Secondary Hierarchical Control System)
  - Assess the impact of load-curtailment and storage elements (including V2G) on frequency performance
- Results
  - Successful islanded operation of a relatively large MV network with a large number of microgrids
  - Successful integration of load and generation curtailment schemes into the Secondary Hierarchical Control System
  - Evaluation of the benefits of V2G concept and other storage elements when autonomously controlled and when under hierarchical control

Short term demand forecasting

João Sousa; Luis Neves; Humberto Jorge

Objectives: to use characteristic data from consumers to forecast short-term future consumption for a distribution network

A necessary feature to make smart-grids work!



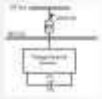
Research on renewable energy

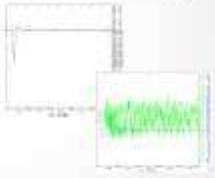
- Improving power system dynamical behavior with STATCOMs in systems with large scale wind generation
- Assessment of Geothermal Heat Pumps
- Assessment of solar cooling
- Assessment of Parabolic trough solar colectors
- Technical management system for a Sports Center

Improving power system dynamical behavior with STATCOMs in systems with large scale wind generation

- Pedro Marques _; J. Peças Lopes

- Objectives: to demonstrate that the use of STATCOM may lead to a considerable reduction of the amount of wind generation that would be removed from operation due to disturbances in the grid.

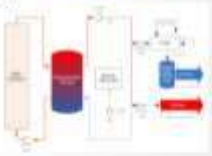




Parabolic Trough Solar Collectors for Building Air Conditioning and DHW

E. S. Quintal, H. S. Bernardo, P. G. Amaral, L. P. Neves

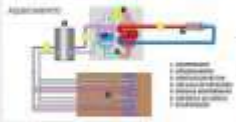
- Objective: to study the use of Parabolic Trough Solar Collectors as part of a HVAC and DHW system to enhance the use of solar in buildings

Assessment of a Geothermal Heat Pump

Hélder Manuel Gomes Saraiva (MSc student)
Supervisor: João Ramos

- Objective: Audit to a Pilot project


Technical management system for a Sports Center

José Ricardo; Richard Marciano (BSc)

Supervisors: Pedro Marques; Eliseu Ribeiro

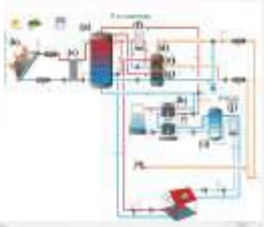
- Objective: to provide a technical management system monitored and controlled through the web


Assessment of solar cooling

Francisco Manuel Oliveira Fernandes (Msc student)

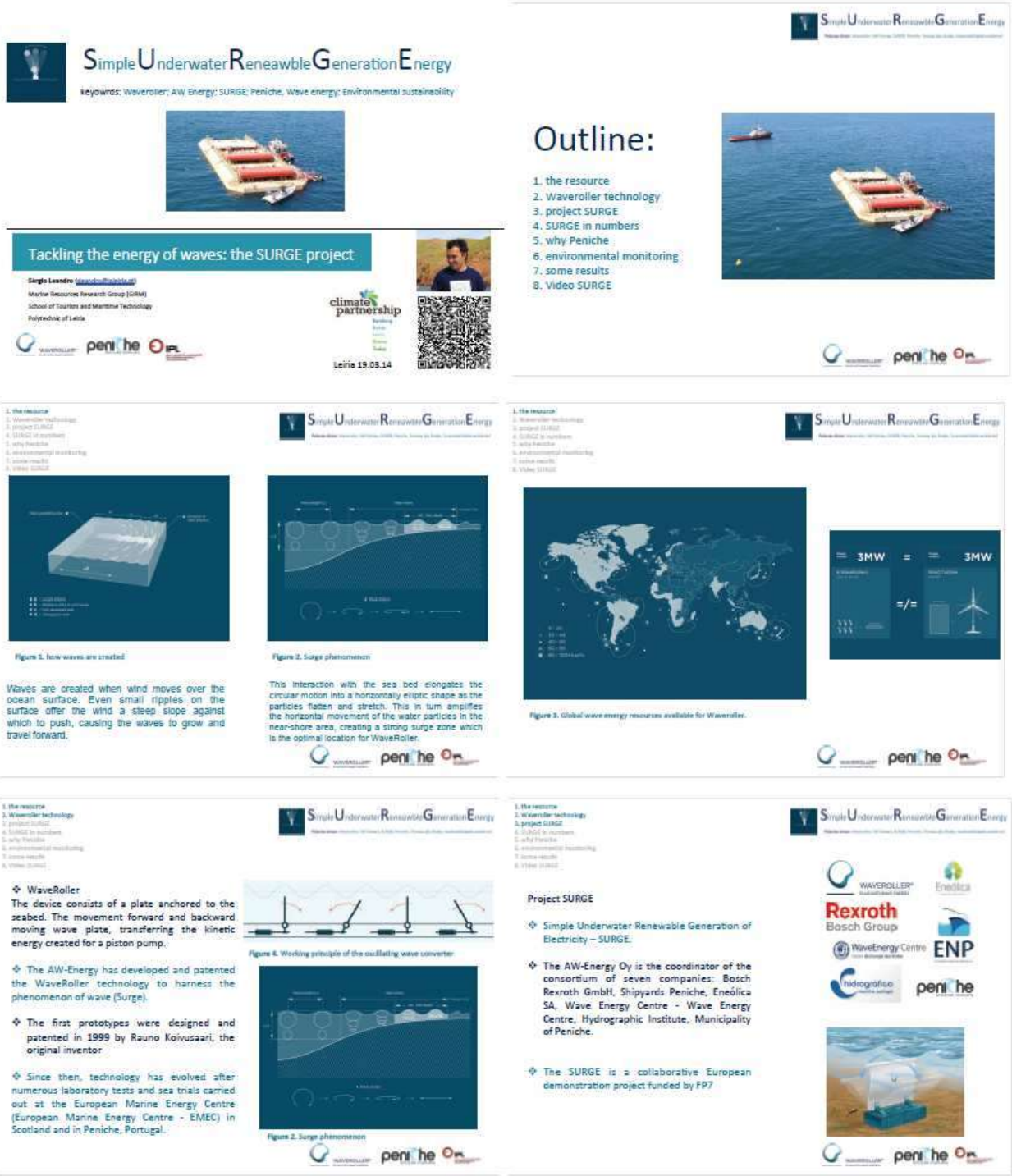
Supervisor: João António Esteves Ramos

- Objectives: Assessment study of an absorption chiller driven by solar panels



Thank you!

4.


SimpleUnderwaterReneawbleGenerationEnergy
keyowrds: Waveroller; AW Energy; SURGE; Peniche, Wave energy; Environmental sustainability
Tackling the energy of waves: the SURGE project
Sérgio Leandro
Marine Resources Research Group (GIRM)
School of Tourism and Maritime Technology
Polytechnic of Leiria
climate partnership
Leiria 19.03.14
Outline:
1. the resource
2. Waveroller technology
3. project SURGE
4. SURGE in numbers
5. why Peniche
6. environmental monitoring
7. some results
8. Video SURGE
Figure 1. how waves are created
Figure 2. Surge phenomenon
Waves are created when wind moves over the ocean surface. Even small ripples on the surface offer the wind a steep slope against which to push, causing the waves to grow and travel forward.
This interaction with the sea bed elongates the circular motion into a horizontally elliptic shape as the particles flatten and stretch. This in turn amplifies the horizontal movement of the water particles in the near-shore area, creating a strong surge zone which is the optimal location for WaveRoller.
Figure 3. Global wave energy resources available for Waveroller.
3MW = = 3MW
=/=
WaveRoller
The device consists of a plate anchored to the seabed. The movement forward and backward moving wave plate, transferring the kinetic energy created for a piston pump.
The AW-Energy has developed and patented the WaveRoller technology to harness the phenomenon of wave (Surge).
The first prototypes were designed and patented in 1999 by Rauno Koivusaari, the original inventor
Since then, technology has evolved after numerous laboratory tests and sea trials carried out at the European Marine Energy Centre (European Marine Energy Centre - EMEC) in Scotland and in Peniche, Portugal.
Figure 4. Working principle of the oscillating wave converter
Figure 2. Surge phenomenon
Project SURGE
Simple Underwater Renewable Generation of Electricity – SURGE.
The AW-Energy Oy is the coordinator of the consortium of seven companies: Bosch Rexroth GmbH, Shipyards Peniche, Eneólica SA, Wave Energy Centre - Wave Energy Centre, Hydrographic Institute, Municipality of Peniche.
The SURGE is a collaborative European demonstration project funded by FP7
WAVEROLLER
Enedica
Rexroth
Bosch Group
WaveEnergy Centre
ENP
hidrografico
peniche

1. the resource
2. Waveroller technology
3. project SURGE
4. SURGE in numbers
5. why Peniche
6. environmental monitoring
7. some results
8. Video SURGE

SimpleUnderwaterRenewableGenerationEnergy

- The SURGE project aims to test the WaveRoller device in a comprehensive manner and hence, beyond performance, including an environmental program in order to evaluate some of the environmental impacts that may occur.

Figure 5. Prototype nº. 1

Figure 6. Prototype tested within project SURGE.

peniche

1. the resource
2. Waveroller technology
3. project SURGE
4. SURGE in numbers
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7. some results
8. Video SURGE

SimpleUnderwaterRenewableGenerationEnergy

- Total investment
  6.5 millions € (FP7)
- Total weight (structure)
  600 toneladas
- Dimensions
  43m length x 18m width x 12m height
- Portuguese participation
  > 50%
- Location
  900m of coastline, 12m depth
- Production capacity
  3 x 100 kW (nominal)

peniche

1. the resource
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SimpleUnderwaterRenewableGenerationEnergy

- FUN FACT: This is the same location where in 1976 was designed to build a nuclear power plant (Ferrel)

Em Ferrel lá p'ra Peniche vão fazer uma central que para alguns é nuclear mas para muitos é mortal os peixes hão-de vir à mão um doente outro sem vida não tem vida o pescador morre o atuel e o salário isto é civilização assim falou um senhor tem cuidado.»

peniche

1. the resource
2. Waveroller technology
3. project SURGE
4. SURGE in numbers
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SimpleUnderwaterRenewableGenerationEnergy

- Suitable conditions for injecting energy into the national power grid

peniche

1. the resource
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7. some results
8. Video SURGE

SimpleUnderwaterRenewableGenerationEnergy

- Resource natural conditions (waves)

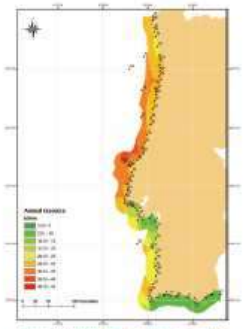


Figure 7. Distribuição do recurso ao longo da costa portuguesa (Fonte ONDATLAS – INETI).

peniche

1. the resource
2. Waveroller technology
3. project SURGE
4. SURGE in numbers
5. why Peniche
6. environmental monitoring
7. some results
8. Video SURGE

SimpleUnderwaterRenewableGenerationEnergy

- Local know-how, namely Shipyards and subaquatic specialized services SME´s
- Other partners located near Peniche with skills important for the project SURGE

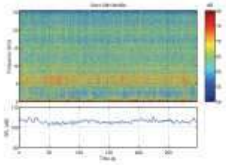
peniche

❖ Involvement of local government (Câmara Municipal de Peniche)

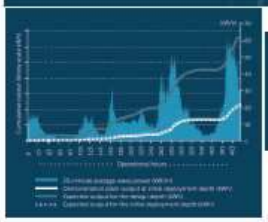
- Strong commitment to the promotion and development of wave energy
- Facilitating role
- Development of a policy of environmental sustainability and exploitation of endogenous resources
- Peniche – The wave Capital, a double dimension: renewables and surf sports
- Municipal Strategy for the Sea - New Technologies applied to marine activities

- Environmental monitoring programm performed by Marine Resources Research Group (GIRM – Polytechic of Leiria.
- Macrobenthic communities

- Submarine noise



PROMISING RESULTS FROM FIRST GRID-CONNECTED WAVEROLLER UNITS -
INITIAL OUTCOMES SURPASS EXPECTATIONS



http://www.youtube.com/watch?v=ZHUT0kr9s78

5.

Leiria's
sustainable
energy action plan

European Covenant of Mayors

Target: 20% CO2
reduction by 2020

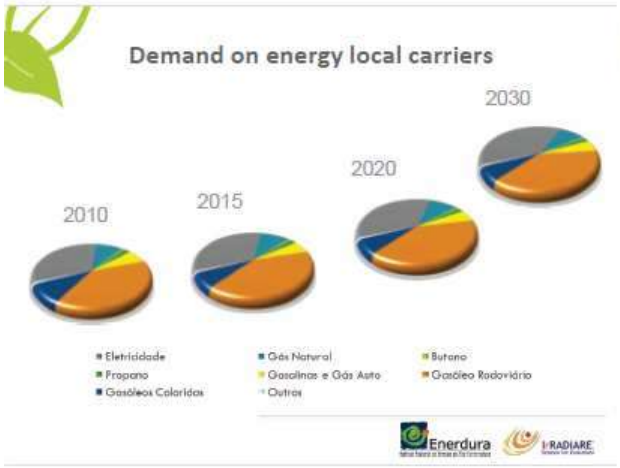
Strategy	Instruments
Integration	Inventory
Investment	Action plan
Commitment	Partnership
	Monitoring

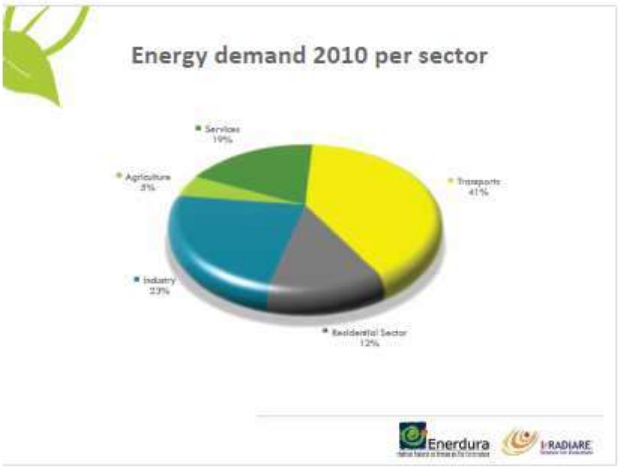
Investment in new energy solutions

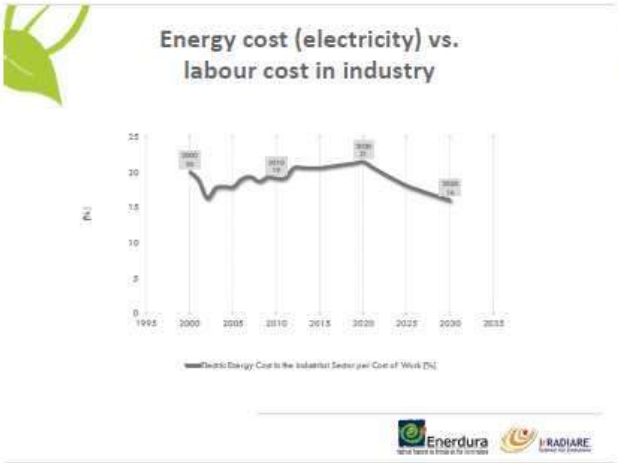
Investment in new energy solutions

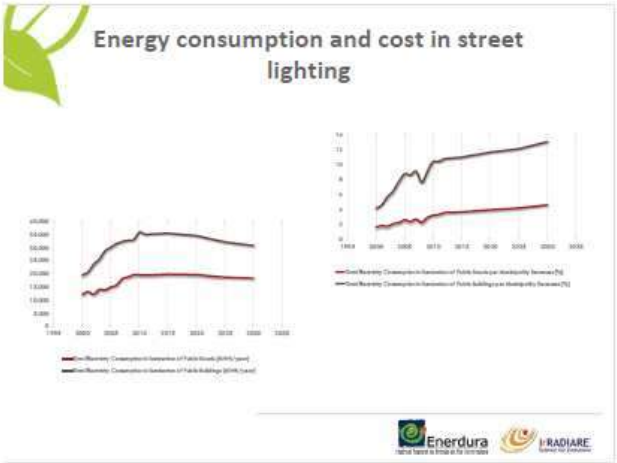
SEAPLeiria

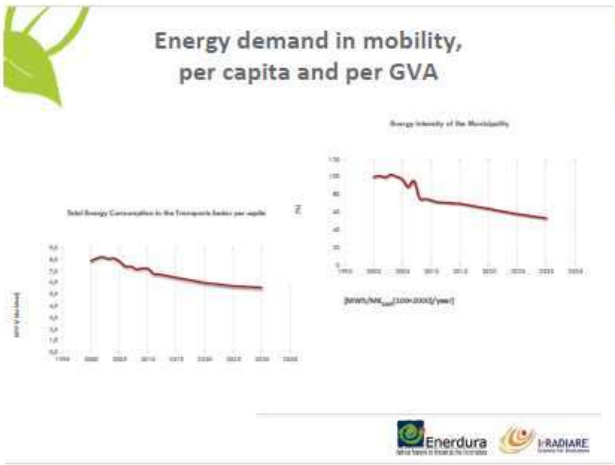
How a baseline is provided for a local stakeholders platform and how mediation between public lead demand and (local) market innovation is achieved

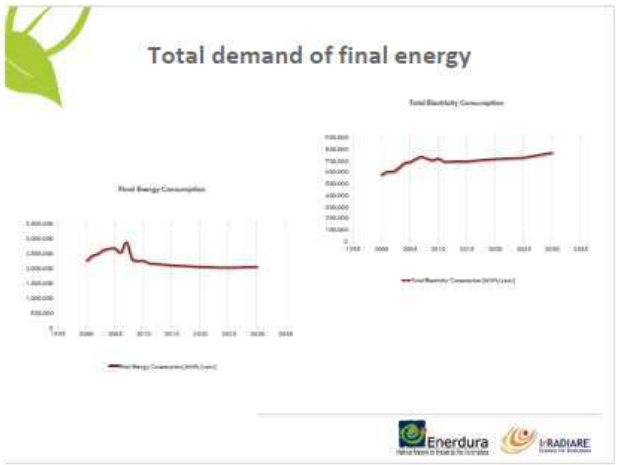

Demand on energy local carriers
2030
2020
2015
2010
Eletricidade
Gás Natural
Butano
Propano
Gasolinas e Gás Asfo
Gasóleo Rodoviário
Gasóleos Coloridos
Outros
Enerdura
I-RADIARE


Energy demand 2010 per sector
Services 19%
Agriculture 3%
Transports 41%
Industry 23%
Residential Sector 12%
Enerdura
I-RADIARE


Energy cost (electricity) vs. labour cost in industry
Enerdura
I-RADIARE


Energy consumption and cost in street lighting
Enerdura
I-RADIARE


Energy demand in mobility, per capita and per GVA
Enerdura
I-RADIARE


Total demand of final energy
Enerdura
I-RADIARE

Leiria SEAP

Implementation of Energy Sustainability Measures

Scenarios	Year	Energy consumption [MWh]	CO_2 emissions [tCO_2]	Energy bill [€]
Base scenario Without measures	2008	3.512.464	1.091.034	302.915.343
Base scenario With measures	2008	2.803.782	871.773	243.219.415
Projected scenario Without measures	2020	2.119.146	604.386	238.822.544
Projected scenario With measures	2020	1.480.723	413.108	184.659.559

Leiria SEAP

Implementation of Energy Sustainability Measures

Measures Impact	Reduction
Energy consumption	20%
CO_2 Emissions	20%
Energy bill reduction (2010 prices)	20%

Leiria SEAP

Implementation of Energy Sustainability Measures

Energy Sustainability Measures	Energy Savings [MWh/year]	Energy Savings [%]
Lighting efficient buildings	11.392	0,32
Optimized IP Management	4.007	0,11
Certification of buildings and audits	35.719	1,02
Eficcient transport	229.996	6,55
Electric mobility	72.153	2,05
Improvement of the public transport network	1.283	0,04
Modernization of industrial equipment	14.363	0,41
Active monitoring	5.472	0,16

Leiria SEAP

Implementation of Energy Sustainability Measures

Energy Sustainability Measures	Energy Savings [MWh/year]	Energy Savings [%]
LEDs and efficient fixtures in IP	3.284	0,09
Solar energy	12.125	0,35
Efficient heat pumps	20.454	0,58
Efficient boilers	15.205	0,43
Efficient boilers	16.126	0,46
Biodiesel	23.954	0,68
Urban renewal and improvement of accessibility	256	0,01
Water management	4.846	0,14

Leiria SEAP

Implementation of Energy Sustainability Measures

Energy Sustainability Measures	Energy Savings [MWh/year]	Energy Savings [%]
Waste management	352	0,01
Distribution management and fleet	282	0,01
Replacement of office equipment	2.513	0,07
Renovation of domestic equipment	770	0,02
Awareness and education for energy efficiency	23.859	0,68
Support the proprietors and residents associations	1.282	0,04
Voluntary reduction of carbon emissions	733	0,02
Increased walk and bicycle use	419	0,01

Leiria SEAP

Implementation of Energy Sustainability Measures

Energy Sustainability Measures	Energy Savings [MWh/year]	Energy Savings [%]
Optimization of professional mobility and commuting	217	0,01
Optimization of mobility for events	200.000	5,69
Green public procurement and taxation	325	0,01
Support Urban Investment and sustainable business	2.526	0,07
Optimizing professional performance	1.109	0,03
TOTAL	705.023	20,07

Leiria SEAP

Implementation of Energy Sustainability Measures

Target sectors for investment	Investment 2008- 2020 [€]
Agriculture	617.602
Terciary buildings and facilities (non-public)	18.340.410
Municipal buildings and facilities	5.835.340
Residential buildings	40.242.791
Municipal street lighting	3.579.128
Industries	19.231.579
Transports	157.221.166
TOTAL	245.068.017

Leiria SEAP

Implementation of Energy Sustainability Measures

Funding and investment sources	Investment 2008- 2020 [€]
Structural funding (ERDF)	13.716.417
Private investment from energy service companies	1.573.811
Direct private (entrepreneurial) investment in terciary sector	11.333.171
Direct private (entrepreneurial) investment in industrial sector	16.443.975
Private (and CAP funded) investment in agriculture	351.216
Private domestic investment in housing	38.902.322
Private investment in transport sector	119.452.296

Leiria SEAP

Implementation of Energy Sustainability Measures

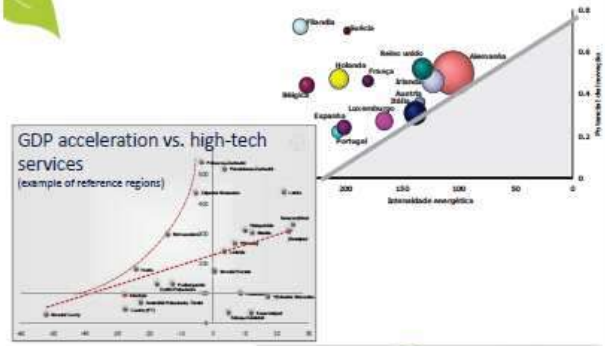
Funding and investment sources	Investment 2008- 2020 [€]
Municipal investment in public services and urban management	4.037.839
Municipal investment in fleets renewal	5.231.314
Governmental programmes	34.025.657
TOTAL	245.068.017

Implementation

How energy sustainability measures operate as a regional asset in attracting innovation, resources, investment and employment

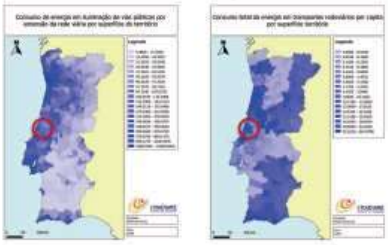
Coordination SEAP/ FaroGlobal

Business environment



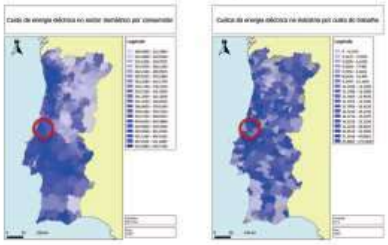
Benchmarking

Leiria, Portugal



Benchmarking

Leiria, Portugal



Conclusions

An integrated investment oriented action plan was developed.

The methodology is available and usable to be shared by other CoM cities or towns

Strong priority to transform energy efficiency targets into innovation, investment, growth and employment

6.

MACEIRA CEMENT PLANT

SECIL/CMP - Maceira 1

SECIL GROUP

- Secil – group of companies acting in the cement sector

SECIL/CMP - Maceira 2

SECIL GROUP

SECIL/CMP - Maceira 3

SECIL GROUP

SECIL/CMP - Maceira 4

MACEIRA - HISTORY

1919

SECIL/CMP - Maceira 5

MACEIRA - HISTORY

1920 – "First stone" 1923 May – Startup

SECIL/CMP - Maceira 6

MACEIRA - HISTORY

Kilns 1 and 2

Production of 110 000 t / year of cement

1928

SECIL/CMP - Maceira 7

MACEIRA - HISTORY

Kilns 1, 2 and 3

Production of 180 000 t / year of cement

1943

SECIL/CMP - Maceira 8

MACEIRA - HISTORY

- 1968 – 1970: present kilns nr. 5 and 6 were installed, using state-of-the-art technology

- 1986: substitution of fossil fuels by alternative fuels (used tyres), representing 10% of the thermal energy needs

SECIL/CMP - Maceira 9

MACEIRA - HISTORY

2003

60 years later... production of 1 450 000 t / year of cement

SECIL/CMP - Maceira 10

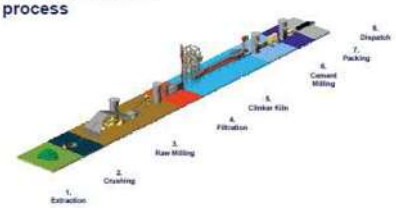
MACEIRA - HISTORY

2012

SECIL/CMP - Maceira 11

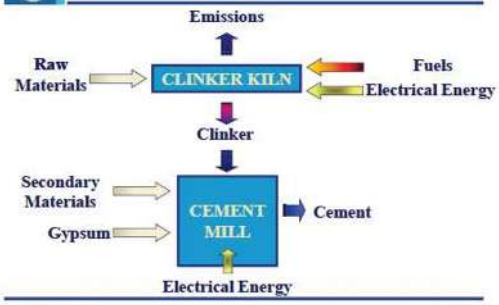
MACEIRA - PROCESS

- Cement production process



SECIL/CMP - Maceira 12

MACEIRA - PROCESS



SECIL/CMP - Maceira 19-03-2014

MACEIRA - IMPACTS

Cement industry impacts...


Quarry Exploitation


Energy Consumption


Atmospheric Emissions

...we minimize and control our impacts

SECIL/CMP - Maceira 14

MACEIRA - IMPACTS

- Quarry Exploitation

Intensive utilization of hydraulic hammers instead of explosives, thus reducing vibrations.

SECIL/CMP - Maceira 15

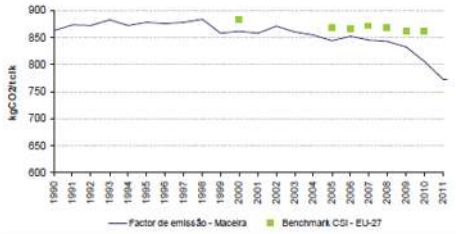
MACEIRA - IMPACTS

- Energy consumption / Atmospheric emissions

SECIL/CMP - Maceira 16

MACEIRA - EMISSIONS

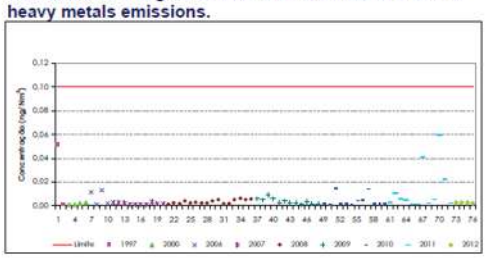
- **Redução of CO2 emissions**



SECIL/CMP - Maceira 17

MACEIRA - EMISSIONS

SECIL: world's largest database on dioxins, furans and heavy metals emissions.



SECIL/CMP - Maceira 18

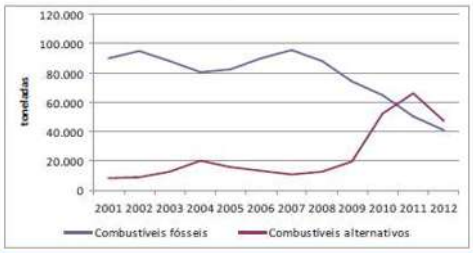
MACEIRA - ENERGY

- **Energy Recovery** – Alternative Fuels

SECIL/CMP - Maceira 19

MACEIRA - ENERGY

- **Evolution of the substitution rate**



SECIL/CMP - Maceira 20

MACEIRA - ENERGY

- **Economical advantages**
  - Reduction of the dependence on imported fossil fuels
  - Reduction of CO2 emissions
- **Environmental advantages**
  - Reduction of fossil fuels consumption
  - No liquid or solid residues
  - Reduction of landfill
  - Reduction of Greenhouse effect

SECIL/CMP - Maceira 21

MACEIRA - CERTIFICATIONS

Maceira-Liz plant has implemented an integrated management system, in order to minimize the impacts of its activity, according to the following standards:

- Quality - ISO 9001
- Safety - ISO OSHAS 18001
- Environment - ISO 14001

EMAS

And EMAS – *Eco Management and Audit Scheme.*

SECIL/CMP - Maceira 22

SECIL - AWARDS

- Environmental Press Award – Innovation for Europe (EEP Award 2009)
  - Environmental Project of Secil and Algafuel

Project on the uptake of carbon dioxide (CO2) and production of biomass through the industrial production of microalgae in Pataias plant

SECIL/CMP - Maceira 23

SECIL - AWARDS

- **EBAE**

European Business Awards for the Environment

2011 - SECIL receives the EBAE - Innovation for Sustainability Award

CATEGORY – MANAGEMENT

THEME – SUSTAINABILITY MANAGEMENT AT SECIL

SECIL/CMP - Maceira 24

7.

Lis Micro Hydro Power Station

Leiria, 20th of march 2014

ENERDURA - Regional Energy Agency of Alta Estremadura

- Created in 2001, resulting from an application of the Association of Municipalities of Alta Estremadura to the European Community Programme SAVE II
- Non-profit Organization
- Increase the energy efficiency of the Alta Estremadura region

ENERDURA – Intervention Area

Municipalities:

- Alvaiázere
- Ansião
- Batalha
- Leiria
- Marinha Grande
- Ourém
- Pombal
- Porto de Mós

ENERDURA – Associated Entities

Alvaiázere, Ansião, Batalha, Leiria, Marinha Grande, Ourém, Pombal, Porto de Mós

AMLEI, ADENE, CBE, CENTIMFE, IPL, VALORLIS

EDP, EST, LENA ENERGIA, LUSITANIAGÁS, NERLEI

ENERDURA – Main Goals

- ✓ Advise consumers and retailers about energy saving and environmentally friendly products;
- ✓ Improve the energy efficiency of the region;
- ✓ Reduce energy consumption and CO_2 emissions;
- ✓ Promote and disseminate the use of local renewable energy sources (RES), mainly Solar, Wind, Water and Biomass;

The TRS Project

- The TRS Project (Portuguese acronym for Sustainable Rural Areas) resulted from an application to the Inter-territorial cooperation measure of the PRODER Programme (Portuguese Rural Development Programme) under the LEADER approach;
- Involved 6 local development associations:
  - LEADER OESTE (lead partner) – Cadaval (West Region)
  - **ADAE – Leiria (Centre Region)**
  - ATACHA – Vila Verde (Northern Region)
  - ADELO – Cantanhede (Centre Region)
  - ADICES – Santa Comba Dão (Interior Centre Region)
  - ADER AL – Portalegre – (Southern Region)

The TRS Project

MAIN GOAL

To demonstrate the technical and economic feasibility of the use of technologies related to renewable energies and energy efficiency

Implementation of demonstration systems using renewable energy sources

MHL - Lis Micro Hydro Power Station

- The Lis Micro Hydro Power Station was implemented under the TRS Project as a demonstration system;
- Entities involved:
  - ADAE – promoter
  - MUNICIPALITY OF LEIRIA – partner that owns the Paper Mill
  - ENERDURA – technical support to ADAE
  - GLINTT ENERGY – private company that executed the MHL
  - PRODER / EU – co-financial support

MHL - Lis Micro Hydro Power Station

TWO MAIN OBJECTIVES

Educational

Environmental

Sensitize the primary school pupils to renewable energies

Contribute to the sustainability of the Paper Mill

MHL - Lis Micro Hydro Power Station

The Lis Micro Hydro Power Station has the typical elements featuring a mini hydro power station:

- A loading chamber or retention basin (intake);
- A pipeline or "penstock";
- A turbine-generator group;
- A restitution channel

Credit: DOE's Office of Energy Efficiency and Renewable Energy

MHL - Lis Micro Hydro Power Station

A loading chamber (intake)

Pipeline

Turbine generator group

Restitution channel

MHL – Retention Basin

The MHL retention basin was initially the same that supplied the Paper Mill

Due to the lack of height, it was built another one above

MHL – Pipeline or "penstock"

The pipeline that conducts the water from the retention basin to the turbine-generator group

MHL – The turbine-generator group

Turbine

Generator

Electric Grid

Kinetic Energy of the water → Mechanical Energy → Electric Energy

Crossflow (Banki-Michell)

DC (Direct Current)

Inverter

AC (Alternating Current)

MHL - Lis Micro Hydro Power Station

- Goals achieved

✓ Educational	Rise awareness amongst the primary school pupils to renewable energy sources (hydropower)
✓ Environmental	Contribute to the sustainability of the Paper Mill
✓ Replicability	Develop an equipment that allows the production of electric energy in rivers or streams with low waterfalls (e.g. water mills)

MHL data

- Average net fall: 2,5 m
- Average flow: 0,2 m^3/s
- Power: 2,1 kW
- Power grid connection: 3,68 kW

The First Paper Mill in Portugal built in 1411

MHL estimated production

- Estimated annual production: 15 MWh (equivalent to 10 small households)

- Annual reduction of GHG emissions: 3,4 Tons CO_2

MHL – some problems

Flood in February

MHL – some problems

The generator was under water and had to be repaired

We are now in the process of repositioning the generator in a higher platform to avoid damage caused by future floods

Thank You

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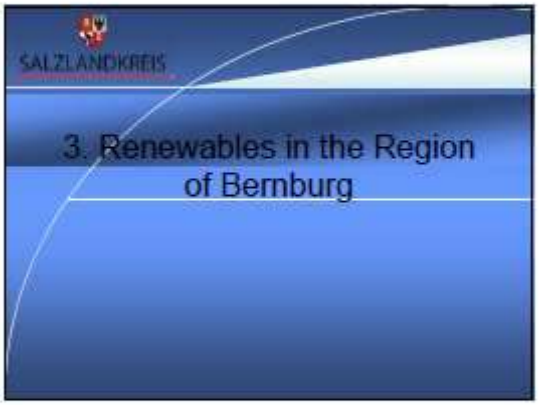
2410-124 Leiria
T: (+351) 244 811 133
F: (+351) 244 822 796
E-mail: enerdura@enerdura.pt
Web: www.enerdura.pt

8.


SALZLANDKREIS
2. Trends in Saxony-Anhalt
(Our Federal State)


SALZLANDKREIS
Saxony-Anhalt
• The renewables are the main energy source since 2010
• The amount of the brown coal has fallen strongly
• Natural gas was the number 1 1995, 1997 and 1998, currently only lies on place 3
• The installed wind power in 2013 is almost as high as in Portugal 2011

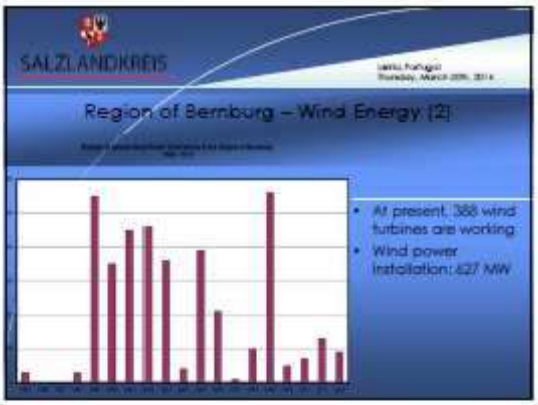

SALZLANDKREIS
3. Renewables in the Region of Bernburg

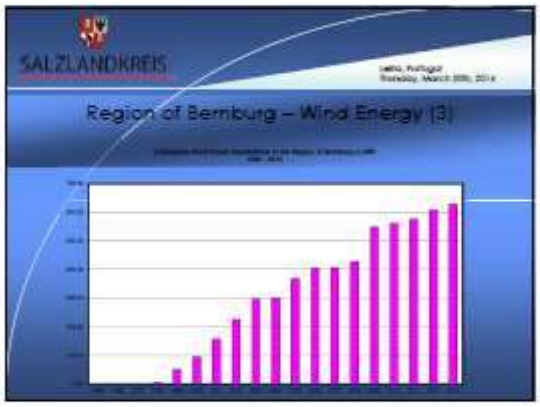

SALZLANDKREIS
Region of Bernburg
Renewables – The Beginning
- One of the first use of renewable energies: windmills
- Picture shows the Buck windmill in Sachsendorf near Bernburg built in 1701
- In the past there was a variety of windmills (about 30: Buck and Patrock Windmills and Tower Dutchman)
- The height of those Windmills amounted to approx. 15 m

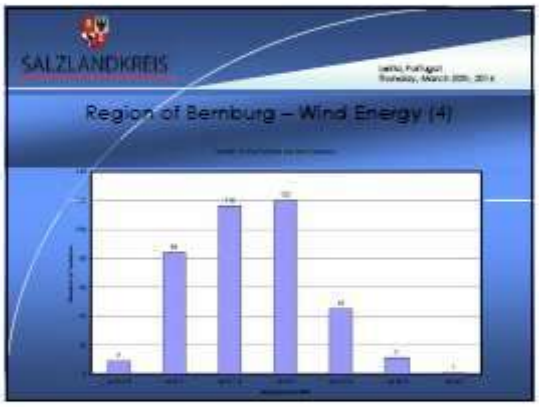

SALZLANDKREIS
Region of Bernburg
Renewables – The Beginning (2)
Soleturm Salzelmen
- Height: 32 m
- Built 1776 as a Windmill
- With the help of the wind power the brine was pumped out from a depth of 85 m to use it for the salt extraction
- Since 1792 a steam engine was used and the windmill essay was removed


SALZLANDKREIS
Region of Bernburg
Renewables: The Past and the Presence
Könnern:
Ruin of the old windmill and the new Wind Park in the background

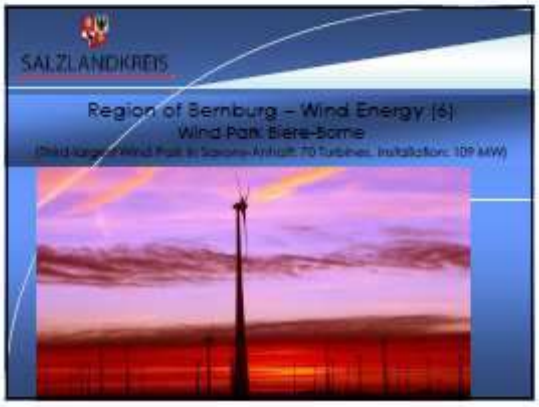

SALZLANDKREIS
Region of Bernburg – Wind Energy (1)
Map of the Wind parks and the Wind Turbine Locations


SALZLANDKREIS
Region of Bernburg – Wind Energy (2)
At present: 388 wind turbines are working
Wind power installation: 627 MW


SALZLANDKREIS
Region of Bernburg – Wind Energy (3)


SALZLANDKREIS
Region of Bernburg – Wind Energy (4)


SALZLANDKREIS
Region of Bernburg – Wind Energy (5)
Height comparison:
On the left:
Wind Turbine E-112 in the Wind Park Egeln
Hub Height: 112 m
Total Height: 180 m
On the right:
The Ulm Minster
The highest church building of the world
Total Height: 161,53 m

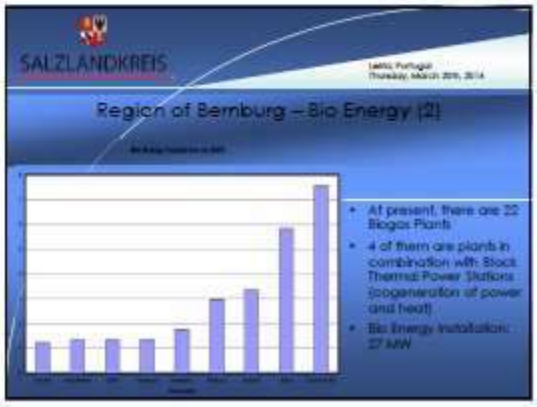

SALZLANDKREIS
Region of Bernburg – Wind Energy (6)
Wind Park Biere-Some


SALZLANDKREIS
Region of Bernburg – Solar Energy (1)
Map of the Solar Parks


SALZLANDKREIS
Region of Bernburg – Solar Energy (2)
At present, there are 30 Wind Parks with a total area of 190 hectares
Solar Power installation: 94 MWp


SALZLANDKREIS
Region of Bernburg – Solar Energy (3)
Wind Park Bernburg-Dröbel


SALZLANDKREIS
Region of Bernburg – Bio Energy (1)
Map of the Biogas Plants


SALZLANDKREIS
Region of Bernburg – Bio Energy (2)
At present, there are 22 Biogas Plants
4 of them are plants in combination with Black Thermal Power Stations (cogeneration of power and heat)
Bio Energy installation: 27 MW


SALZLANDKREIS
Region of Bernburg – Bio Energy (3)

SALZLANDKREIS

Region of Bernburg – Bio Energy (4)
Special: Bio Natural Gas Plant

Biogas Park Könnern (Agri.capital and Agridea Biopower)

- Raw materials: corn silage, grain, sugar beet escalopes and liquid manure (170.000 t)
- Annual production: 39 million m³ bio raw gas (23 million m³ bio natural gas – feeding into the gas net)
- Caloric value of the gas: 11.43 kWh per m³

SALZLANDKREIS

Region of Bernburg – Bio Energy (5)
Biogas Park Könnern

SALZLANDKREIS

Region of Bernburg – Hydro Energy (1)

Map of the Hydroelectric Power Stations

Saale: Bernburg
Saale Mill and Paper Factory
Installation: 810 kW

Saale: Calbe
Saale and Millrace
Installation: 2,400 kW

Wipper: Wasmuthof
Installation: 200 kW

Annual generation: 27,000 MWh

SALZLANDKREIS

Region of Bernburg – Hydro Energy (2)
Hydropower Station Bernburg (Mönchmeier)

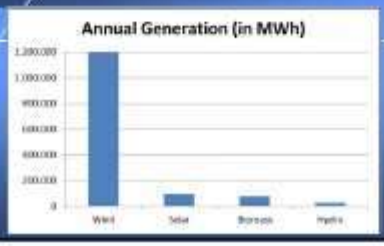
SALZLANDKREIS

Region of Bernburg – Summary (1)

Map of the Renewable Energy Plants

SALZLANDKREIS

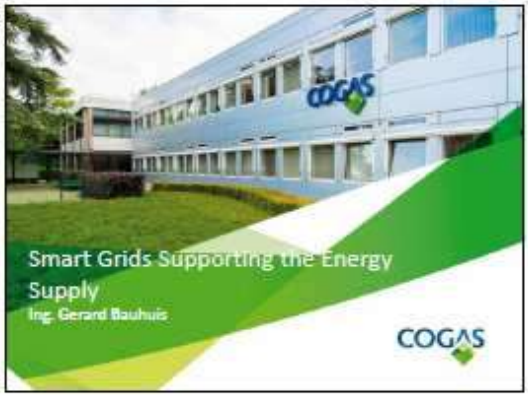
Region of Bernburg – Summary (2)




SALZLANDKREIS
Result
→ The significance of the renewable energies increases steadily (Energy Turn).
→ The available density of the existing plants (Wind, Solar) required a order in the context of the Regional Planning. Important is the specification of Suitability areas and Pre-rank areas.
→ The increasing plant height of the wind turbines represents a problem for the landscape.
→ The regional creation of value of the renewable energies should be moved into the focus. A positive example is the municipal company SOLSA Solarenergie Sachsen-Anhalt in Bernburg which operates two solar parks and a wind park.
→ At the moment, the consequences of the planned amendment of the Renewable Energies Law (EEG) aren't foreseeable yet.


SALZLANDKREIS
Thank you for your attention!
Obrigado por sua atencão!
Dėkojame už jūsų dėmesį!
Tilo Wechselberger
Salzland Administrative District
Special Service for District and Business Development
Fon 0049-3471-684179O
Email: twechselberger@kreis-slk.de

9.



COGAS

Agenda

- Introducing Cogas
- Cogas vision for the future energy supply
- Smart Grids
- Projects Cogas and Borne Sustainable
- Questions ?

COGAS

Our Company

Cogas has been for many years one of the leading network operators in Eastern Netherlands.

- Founded in 1966, 9 Twente local authority's (Borne, Almelo, Wierden, Tubbergen a.o...) as shareholder
- 250 employees
- 135,000 connections (gas and electricity)
- 80.000 connections (fiber optic)
- Turnover (2013) 50 MEuro
- Profit (2013) 22 MEuro
- Reliability as a basis

COGAS

Cogas Sustainable Energy

Heatpumps (water as Base)
Biomass (wood chips)
Biogas

COGAS

Our position, challenges

On the basis of the vision of the Dutch Grid Organization, change much between now and 2030 is going for the grid administrator:

- Networks are more heavily taxed.
- Users go yourself energy and energy back.
- Traditional energy sources are increasingly scarce.
- The demand for other forms of energy is increasing.
- System operator is independent facilitator of the free energy market.
- Growing need for partnerships to the uncertain future together to predict.

COGAS

Our ambition

Cogas developed over the years to a socially involved party to pronounce with a regional focus and a number of goals:

- Making the traditional role of system operator to the active role of connect.
- With a smart energy and communications network to realize sustainable Twente.
- Working together to build a region where people can live, work and live comfortably.

COGAS

Our areas of expertise

To best implement the role of connector Cogas explains himself to three specialties:

- Connections – creation, maintenance and management, for reliable smart networks.
- Energy management – advice, tools and insight, for a more efficient use of energy.
- Sustainable energy solutions – decentralised solutions, for an energy supply for future.

Within each specialty offers Cogas knowledge sharing as an added value.

COGAS

Agenda

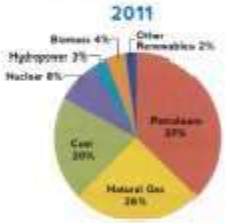
- Introducing Cogas
- Cogas vision for the future energy supply
- Smart Grids
- Projects and Borne Sustainable
- Questions ?

COGAS

Organisation of the dutch energy sector

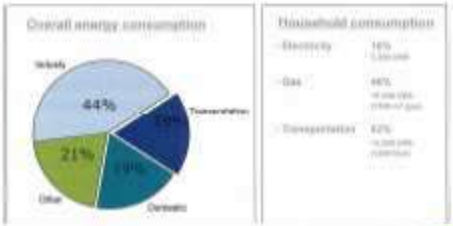
COGAS

Fossil fuels dominate energy consumption



COGAS

Energy consumption in the Netherlands



COGAS

The road towards a sustainable energy supply

- The energy transition is the transition from an energy supply relying on fossil fuels to an energy supply using renewable energy sources

Foundations of the energy transiation:

- Produce energy from renewable sources
- Save energy by increasing conversion efficiency and reducing energy losses

COGAS

Agenda

- Introducing Cogas
- Cogas' vision for the future energy supply
- Smart Grids
- Projects and Borne Sustainable
- Conclusions

COGAS

Smart Grids – a definition

A Smart Grid is:

- An electricity network with technologies that make avaible information on the energy flows in the network.
- and the state of its components
- and that allow contol of energy flows in order to support the energy transition efficiently

COGAS

Smart Grids supporting the future Energy Value Chain

Smart Grids support the future energy value chain by:

- Enabling exchange of information between parties with respect to actual system balance/prices on the energy market
- Enabling (sustainable) energy collectives
- Balancing available flexibility and (forecasted) production of sustainable energy sources
- Informing consumers about their consumption and cost
- Enabling new commercial propositions and increased consumer choice

COGAS

Agenda

- Introducing Cogas
- Cogas' vision for the future energy supply
- Smart Grids
- Projects and Borne Sustainable
- Questions ?

COGAS

Sustainable energy solutions: some local initiatives

Examples of projects for which this is true:

- 16 km Biogas pipes from Elhorst Vloedbelt (Borne)
- - Almelo
- Energiek Vasse
- Stichting Noord-Deurningen
- Muziekwijk Zwolle
- Borne Sustainable

COGAS

Landfill "Elhorst-Vloedbelt" in Borne

COGAS

Energiek Vasse

COGAS

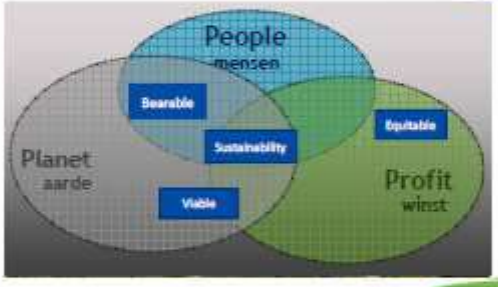
Energiek Vasse

Vasse a village in Twente with approx 1500 inhabitants, yet self supporting (supermarket, hairdresser, café, restaurants..) , but for how much longer?

* Objective energy neutral by 2020.
* Making money with energy.
* Investing in Sustainable energy, preferably Sun and water.
* Saving energy with a competition in neighborhoods of Vasse.

COGAS

COGAS



COGAS

Noord Deurningen

COGAS

Noord Deurningen

- Biogas to supply companies in Denekamp;
- 4 farmworkers: 21 manure digester;
- Biogas leadership of 15 km;
- Total investment: € 2.9 M
- Payback without grant 11 years;
- Payback with grant 5 years;
- Investment per Farmer € 80.000, Deployment of Cogas gasbuffer is examined;
- Depreciation biogas leadership network = 24 years, possibly to 30 years??
- Realization 2015 ??

COGAS

Noord Deurningen

- 2 companies as customers
- 20 farmworkers
- ___ is the hub

COGAS

Muziekwijk in Zwolle (Location central Neth.)

- Heat Generation with wood chips.

COGAS

Muziekwijk

- Muziekwijk with 333 homes
- Heating in a sustain-able way, wood chips
- Client: SWZ Housing Corporation
- Collective system

COGAS

Muziekwijk Zwolle

- 80% of the heat generated by wood chips
- CO2 savings is 77% compared to gas
- Pruning wood from maintenance of forests near Zwolle

COGAS

Borne Duurzaam / Borne Sustainable

- Non-profit foundation
- Citizens take the lead, the municipality (civil servants) support if possible and necessary
- Mission statement:

"Together we create a sustainable society in Borne that is an example voor other towns and cities in the Netherlands."

Roelof Jan Naaktgeboren

COGAS

Borne Duurzaam / Borne Sustainable

Some of the projects

- Competition "Most sustainable idea for Borne" Citizens get support to realize their sustainable idea
- Collective vegetable garden; meeting people and grow your own local food at the same time
- Put the "B" back in Borne. Support endangered species (bees), creating better living conditions
- Energy-cooperation; project Bee-One

COGAS

BorneEnergie

Energy cooperation (BorneEnergie) and Bee-One

- Solar- energy for people without a suitable roof: Northside (not possible) or historical (not allowed)
- First project (Bee-One) 230 solarpanels (45000, kWh) for households in Oud Borne (historical centre)

COGAS

BorneEnergie

Energy cooperation and Bee-One

- Households buy panels in the solarpark on the roof of the townhall. The investors are shared owner of the energy cooperation and the solarpark
- Starting date (hopefully) end of may 2014
- Municipality and cooperation work together and use each others strength and connections to make it work

COGAS

Used information sources

- Prof. dr. ir. J.G. Slootweg Enexis
- Foundation Sustainable Noord Deurningen
- Energy cooperative Energiek Vasse
- Netbeheer Nederland

ENEXIS

COGAS

We cannot do this alone and would like to connect to the collaboration/parties. We would like to share ideas and together with people in conversation.

- Questions ?

10.a

WINDWEST
WIR BÜNDELN ENERGIE.

The regional wind energy network

WINDWEST

Outline

1. General Information
2. Development of WindWest
3. WindWest Workshops
4. Partners
5. Discussion

WINDWEST

1. General Information

- economic restructuring in the last 50 years
- formally
  - location for textilindustry
    - thousands of employees in the 20th Century
  - location for armed forces (Bundeswehr)
    - up to 10.000 employees
    - actual: shrinking from 2000 to 150 employees
  - location for automotive supplier (Karmann)
    - up to 2000 employees

WINDWEST

1. General Information

- One of the lowest unemployment rates in the region
  - 4 – 5%
- Where do these people find a job?

➢ wind energy gives more than 2000 people a job in our region

WINDWEST

2. WindWest development

- Wind energy located in Rheine since the 1970th

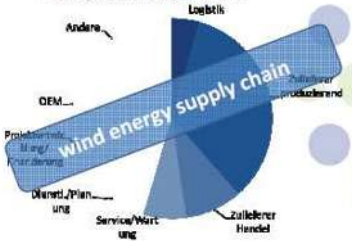
TACKE Windtechnik → ENRON

→ GE

WINDWEST

2. Development of WindWest

- Beginning 2010
  - Enterprises interested in WindWest



2. Development of WindWest

- Beginning 2010
  - Survey

2. Development of WindWest

- Mid 2010
  - meetings between EWG Rheine & Gemeinde Salzbergen
- End 2010
  - High level talk between the district administration of Steinfurt & Emsland
- Conclusion
  - WindWest should be professionalized

2. Development of WindWest

- WindWest combines
  - two rural districts (Steinfurt & Emsland)
  - two federal states (North Rhine Westfalia & Lower Saxony)

2. Development of WindWest

WindWest Network Manager

Marina Müller

located in Salzbergen (Lower Saxony)

Yassine Mokdad

located in Rheine (North Rhine-Westphalia)

2. Development of WindWest

- Mid 2011
  - Steering comittee

„Wind-West"-Lenkungskreis konstituiert sich

2. Development of WindWest

- WindWest Meeting End 2011

2. Development of WindWest

3. Workshops

- Logistics Workshop

WINDWEST LOGISTIK

- Employees Workshop

WINDWEST PERSONAL

3. Workshops

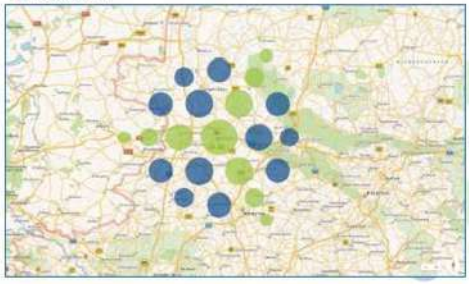
- Logistics

3. Workshops

4. Partners

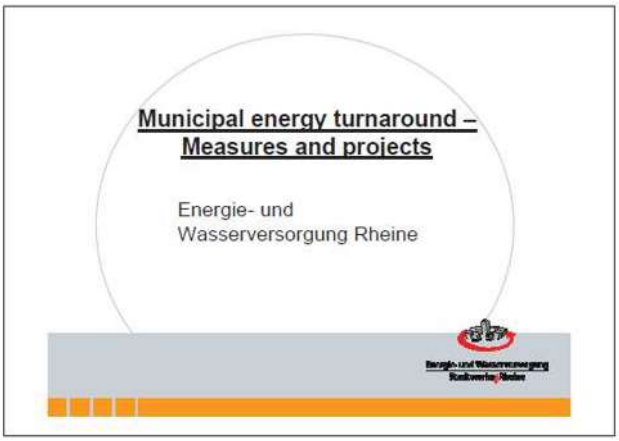
4. Partners

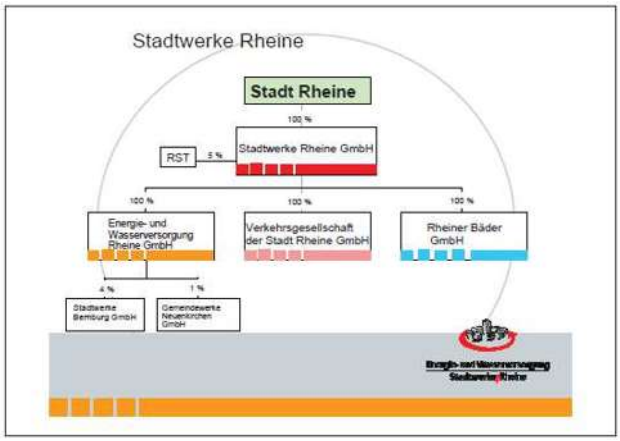
4. Partners

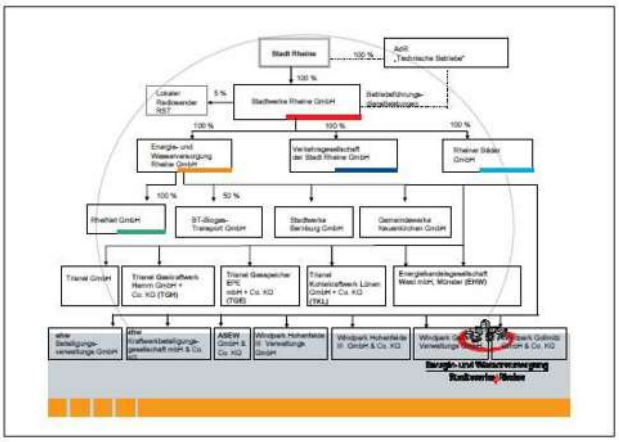


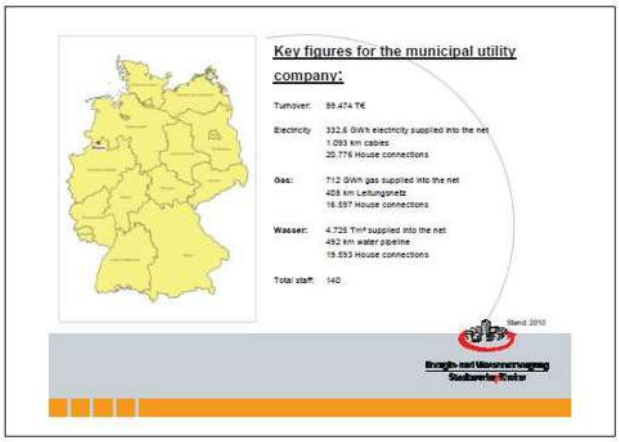
Thank You

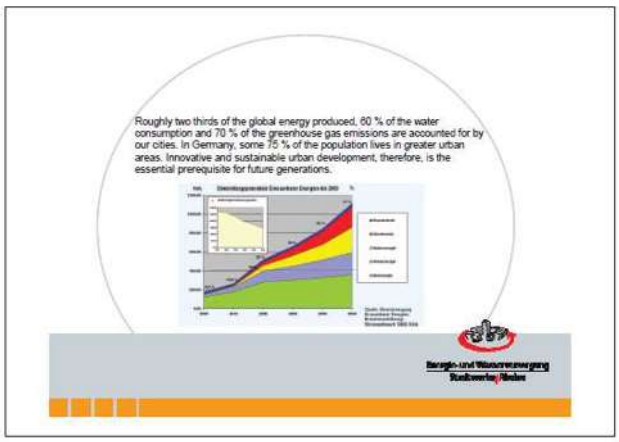
10.b


Municipal energy turnaround –
Measures and projects
Energie- und
Wasserversorgung Rheine


Stadtwerke Rheine
Stadt Rheine
100 %
Stadtwerke Rheine GmbH
RST
5 %
100 %
100 %
100 %
Energie- und Wasserversorgung Rheine GmbH
Verkehrsgesellschaft der Stadt Rheine GmbH
Rheiner Bäder GmbH
4 %
1 %
Stadtwerke Bernburg GmbH
Gemeindewerke Neuenkirchen GmbH




Key figures for the municipal utility company:
Turnover: 99.474 T€
Electricity 332,6 GWh electricity supplied into the net
1.093 km cables
20.776 House connections
Gas: 712 GWh gas supplied into the net
408 km Leitungsnetz
16.597 House connections
Wasser: 4.726 Tm³ supplied into the net
492 km water pipeline
19.593 House connections
Total staff: 140


Roughly two thirds of the global energy produced, 60 % of the water consumption and 70 % of the greenhouse gas emissions are accounted for by our cities. In Germany, some 75 % of the population lives in greater urban areas. Innovative and sustainable urban development, therefore, is the essential prerequisite for future generations.


Energy generating installations in the municipal area
Photovoltaic systems (PV) EWR 38 Stck. Rating: 2.280,74 KWp
Photovoltaic systems (PV) customer plants1 363 Stck. Rating: 25.360,20 KWp
Biogas systems 13 Stck. Rating: 4.991,00 KW
Sewage gas systems 1 Stck. Rating: 320,00 KW
Hydro-electric systems 4 Stck. Rating: 178,00 KW
Wind turbines 3 Stck. Rating: 140,35 KW
Total: 33.370,28 KW

Electric power grid 09.03.2014

Wind energy

The municipal utility company (Stadtwerke) Rheine continue to invest in renewable energies. By the year 2016, Stadtwerke Rheine, in collaboration with other municipal utility companies, plan to realise a wind energy portfolio for a volume of 150 MW. For this project, we recently founded the "Trianel Onshore-Windkraftwerke GmbH & Co. KG" (TOW), an associated company with home office in Rheine.
"Energie- und Wasserversorgung Rheine GmbH" – EWR – (Energy and Water Supply Rheine Ltd.) is one of the founding shareholders, maintaining a 3.3% share of the new company, representing a 5 MW share of the wind energy portfolio. EWR shall invest € 3.0 million into the newly founded associated company.
The first 26 MW onshore wind farm for the new holdings at TOW is located in Saxony-Anhalt at the Luther city of Eisleben. By the end of 2013, construction and installation details were finalised at the wind farm with its 11 plants at Volkstedt and Polleben. Other project options for the TOW portfolio are currently investigated in Rhineland-Palatinate, Saxonia and Bavaria. Here, wind farms could be realised for an accumulated performance of 27 MW.

Wind energy

Aside from "Energie- und Wasserversorgung Rheine GmbH" (EWR) and "Trianel GmbH" from Aachen, ca. 20 other municipal utility companies plan to join the newly founded TOW. The EWR is also associated with the wind farms Hohenfelde and Gollmitz in Brandenburg and it operates a wind turbine in Gross-Santersleben in Saxony-Anhalt. The Stadtwerke Rheine (EWR) continuously expand their energy producing capacity from renewable energy sources to an impressive 15 MW, and as such, they are highly engaged in the implementation of sustainable energy sources in support of a turnaround for the energy policy.
Considerable restrictions limit further erection and use of wind turbine systems with respect to general environmental protection measures and the conservation of natural landscapes. In the mean time, the vast amount of statutory regulations and directives impose planning phases extending for several years. Nevertheless, Stadtwerke Rheine shall pursue their strong engagement in municipal priority areas as this is central to the long-term corporate policy.

Wind turbine in Santersleben

Solar energy

Aside from wind turbines in the various wind farms for a total 12 MW, EWR also operates photovoltaic (PV) installations in Rheine which yield roughly 2.5 MW electric power. Electric power generated by the PV systems in Rheine is used to supply customers in the municipal net and within the Steinfurt county. Thus, EWR customers buy electric power which is not transferred from far away via the national grid but rather from within the region itself. In co-operation with 'Stadtwerke' in Greven, Ochtrup and Steinfurt, the EWR supplies the energy product "County energy" from our region. The power generated in Steinfurt county is used by our customers in the local region. In every case, individual performance audits will be conducted before any further installation of solar power systems.
In the coming years we shall continue to expand with in the field of renewable energy source, thereby further improving our means to reduce overall CO_2 emission. However, in consideration of the uncertainty regarding the future of the feed-in tariff for PV installation, we may expect reduced activity on the solar power market.

PV installation 635 kWp

PV installation 635 kWp

PV installation 370 kWp

PV installation 370 kWp

Electromobility

Without an increased use of electric drive systems for our road traffic, there will be no chance to meet the Federal Government's climatic and energy policy objectives for the road transport sector. Stadtwerke Rheine GmbH (EWR) strongly supports such initiatives and we have successively developed and expanded the restructuring of our motor pool. In 2013, we ordered our first electrically-powered vehicles. Over the next few years, we shall expand our fleet to 15 zero-emission units. With this programme Stadtwerke Rheine will make a valuable contribution for a climate-neutral development in our community.

Local public transportation

Today, our urban buses lines serve every bus stop in 30 minute intervals. The steadily increasing number of users shows that this concept is widely accepted. This increasing acceptance of the local bus as an economic, practical and safe means of transport substantially reduces individual traffic, which in turn pays off as an added means for CO_2 reduction

Co-Generation (KWK)

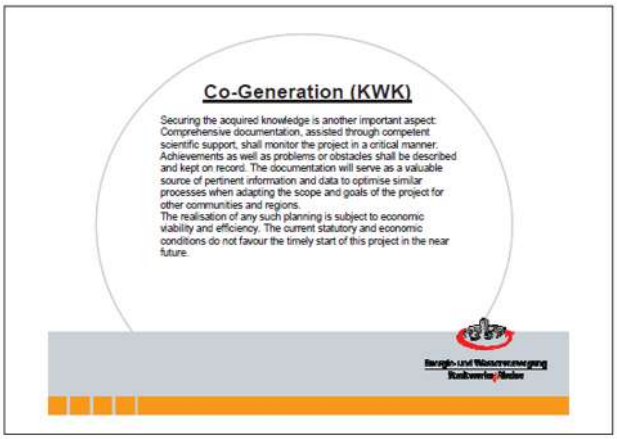
Planning KWK
Planning is under way in Rheine for the development of an economically feasible co-generation net in predominantly rural district centres. The planning scheme has been designed for three stages:
In the stage one, two gas-powered co-generation plants shall be operated at the Stadtwerke location. This plant could supply several public and private buildings nearby.
In stage two another bio-mass co-generation plant shall be at the location of the city's technical services to supply adjacent residential and industrial users.
In stage three any excess biogas potential shall be used to switch the co-generation plant from stage one to this energy source and effectively reduce the CO_2 output.

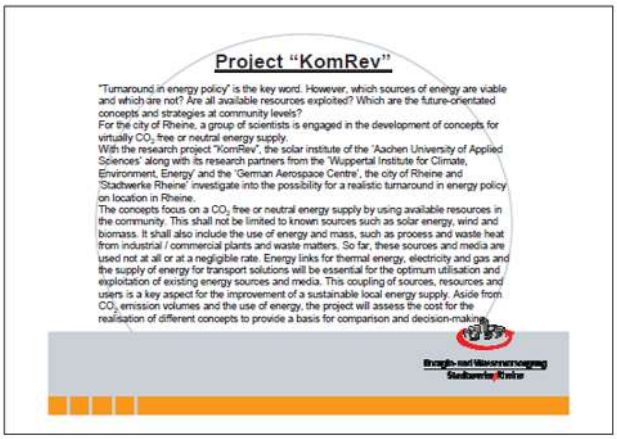
Co-Generation (KWK)

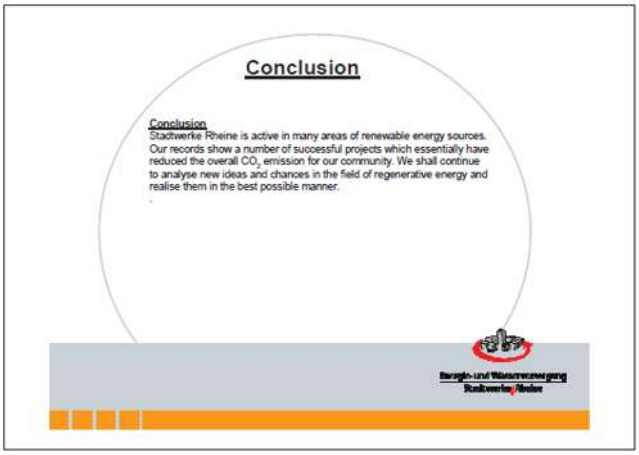
The extendive programme shall be supplemented by another module to serve Rheine's northern industrial district by using the thermal energy generated in the co-generation plant operating with fermentation gas from the city's waste water treatment plant.
The model project is the start of a comprehensive co-generation strategy for Rheine. Further co-generation potential will be analysed. Capabilities and capacities for future expansions will be investigated and PR measures will be devised for increased acceptance by private and commercial users alike. All these efforts centre onto the scope of the project, viz. realisation and implementation of co-generation technology on a broad scale.

Co-Generation (KWK)

The realisation of the before-mentioned phases shall serve as kick-off and initiative for the installation of highly efficient and ecological power and heat generating plants for urban co-generation strategy. Thus, the programme shall be considered as the initial impetus for an increased use of co-generation technology and its potential for the greater Rheine region.
Aside from the implementation of the planned technical and structural measures, the innovative co-generation strategy for Rheine shall assist planners in the assessment of co-generation potential for Rheine itself and for the adjacent regions to provide valuable data for further expansions, the need for information and research into problems not solved so far (general acquisition, monitoring, network distances, energy storage, etc.), campaigning for increased use of co-generation (by both commercial and private users). A generally "transparent centre" shall be another incentive for broader acceptance of this energy scheme.

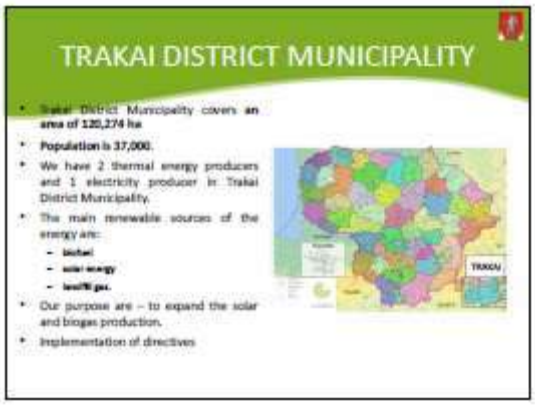

Co-Generation (KWK)
Securing the acquired knowledge is another important aspect: Comprehensive documentation, assisted through competent scientific support, shall monitor the project in a critical manner. Achievements as well as problems or obstacles shall be described and kept on record. The documentation will serve as a valuable source of pertinent information and data to optimise similar processes when adapting the scope and goals of the project for other communities and regions.
The realisation of any such planning is subject to economic viability and efficiency. The current statutory and economic conditions do not favour the timely start of this project in the near future.


Project "KomRev"
"Turnaround in energy policy" is the key word. However, which sources of energy are viable and which are not? Are all available resources exploited? Which are the future-orientated concepts and strategies at community levels?
For the city of Rheine, a group of scientists is engaged in the development of concepts for virtually CO_2 free or neutral energy supply.
With the research project "KomRev", the solar institute of the 'Aachen University of Applied Sciences' along with its research partners from the 'Wuppertal Institute for Climate, Environment, Energy' and the 'German Aerospace Centre', the city of Rheine and 'Stadtwerke Rheine' investigate into the possibility for a realistic turnaround in energy policy on location in Rheine.
The concepts focus on a CO_2 free or neutral energy supply by using available resources in the community. This shall not be limited to known sources such as solar energy, wind and biomass. It shall also include the use of energy and mass, such as process and waste heat from industrial / commercial plants and waste matters. So far, these sources and media are used not at all or at a negligible rate. Energy links for thermal energy, electricity and gas and the supply of energy for transport solutions will be essential for the optimum utilisation and exploitation of existing energy sources and media. This coupling of sources, resources and users is a key aspect for the improvement of a sustainable local energy supply. Aside from CO_2 emission volumes and the use of energy, the project will assess the cost for the realisation of different concepts to provide a basis for comparison and decision-making.

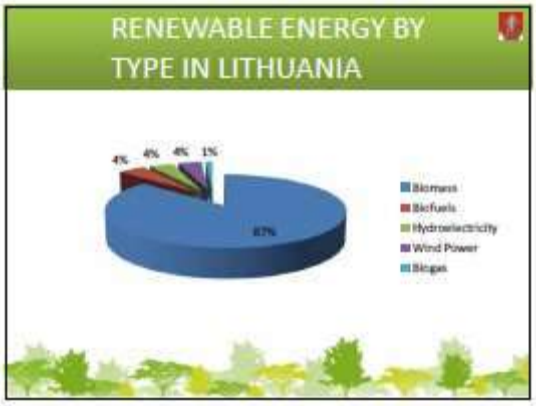

Conclusion
Conclusion
Stadtwerke Rheine is active in many areas of renewable energy sources. Our records show a number of successful projects which essentially have reduced the overall CO_2 emission for our community. We shall continue to analyse new ideas and chances in the field of regenerative energy and realise them in the best possible manner.

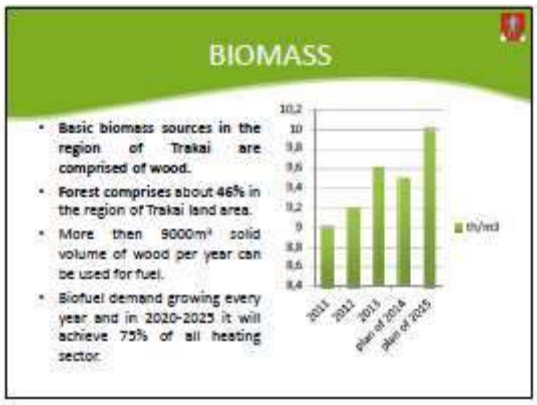
11.

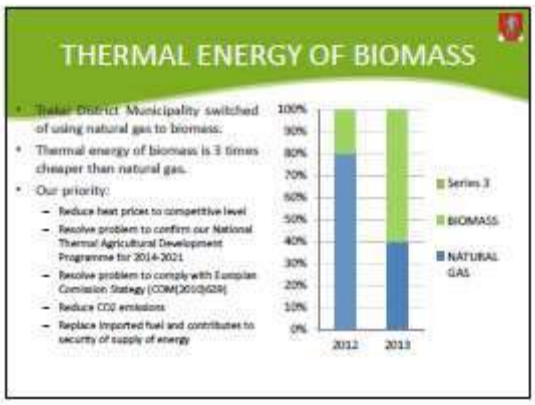

RENEWABLE ENERGY RESOURCES
Trakai District Municipality, Lithuania


TRAKAI DISTRICT MUNICIPALITY
Trakai District Municipality covers an area of 120,274 ha
Population is 37,000.
We have 2 thermal energy producers and 1 electricity producer in Trakai District Municipality.
The main renewable sources of the energy are:
biofuel
solar energy
landfill gas.
Our purpose are – to expand the solar and biogas production.
Implementation of directives
TRAKAI


RENEWABLE ENERGY IN LITHUANIA
In 2013 Renewable energy in Lithuania constituted 18,8% of the country's overall electricity generation.
The Lithuanian government aims to generate 23% of total power from renewable resources by 2020.
The amount of energy generated from biomass in Lithuania is the second highest in the EU per capita.
It is estimated that in 2020 the country will lead the EU in the quantity of biomass available for biofuel production.


RENEWABLE ENERGY BY TYPE IN LITHUANIA
4%
4%
4%
1%
87%
Biomass
Biofuels
Hydroelectricity
Wind Power
Biogas


BIOMASS
Basic biomass sources in the region of Trakai are comprised of wood.
Forest comprises about 46% in the region of Trakai land area.
More then 9000m³ solid volume of wood per year can be used for fuel.
Biofuel demand growing every year and in 2020-2025 it will achieve 75% of all heating sector.
10,2
10
9,8
9,6
9,4
9,2
9
8,8
8,6
8,4
th/m3
2011
2012
2013
plan of 2014
plan of 2015


THERMAL ENERGY OF BIOMASS
Trakai District Municipality switched of using natural gas to biomass.
Thermal energy of biomass is 3 times cheaper than natural gas.
Our priority:
Reduce heat prices to competitive level
Resolve problem to confirm our National Thermal Agricultural Development Programme for 2014-2021
Resolve problem to comply with Europian Comission Strategy (COM(2010)639)
Reduce CO2 emissions
Replace imported fuel and contributes to security of supply of energy
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2012
2013
Series 3
BIOMASS
NATURAL GAS

BENEFIF OF USING BIOMASS

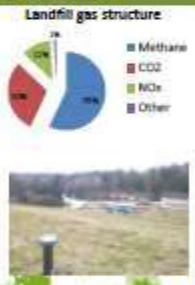
- *Ecological safety*
- *Economic benefit*
- *Social benefit*
- *Energy security*
- *Regional development*

Gas power plant at Kariotiskes landfill close to Trakai

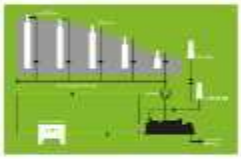
- A landfill gas power plant , the first in Lithuania, has been opened at the shut-down Kariotiskes landfill.
- UK's company invested 2 million EUR into the facility, which supplies electricity to the power grids.
- More than 3 million tons of waste were collected at the Kariotiskes landfill.
- The capacity is 500 kW p/hour and will increase to 1 million kW p/hour in the future.
- Biogas 260 m3/hour.
- The first landfill gas power plant in Lithuania will generate electricity for 15 years.

Landfill gas utilisation environmental benefits

- Reduced greenhouse gas emissions
- Low engine emissions for NOx and CO_2
- Reliable and best practice migration control
- Fully environmentally bunded compartment and control room



Landfill gas utilization financial and operational benefits



- Attracted private investment capital
- Attractive royalties from the sale of power
- Through selling power of our growing portfolio, we achieve the best value for renewable energy
- Substantially reduced aftercare costs
- Fully modular, easily portable systems
- Easily extendable capacity
- Extended period of gas utilization
- Remote monitoring system
- Local service team used for continued support

Solar energy in EUROPE

Solar energy in LITHUANIA

- **Solar power in Lithuania** created 39 GWh of power in the first nine months of 2013.
- It's about 0,5% of all electricity produced in Lithuania.
- Lithuania has 1,580 small solar power plants and has an uncounted number of private power plants which make electricity only for their owners.

The biggest solar power plant in the Region of Trakai is in Brazuole village near Trakai

- The solar power plant in Brazuole began to work in August of 2013.
- Capacity is 1 MW
- Built-up area is 2,5ha.
- Lithuanian government support the solar manufacturing companies.

SUMMARY

- We have a big potential to expand of using renewable recourses like landfill gas and solar energy.
- Biomass represents the most common source of renewable energy in Trakai District Municipality.
- Thermal energy of biomass is 3 times cheaper than natural gas.
- We see really big potential to increase renewable energy recourses and our priorities are the followings:
  - Reduce heat prices to competitive level
  - Resolve problem to comply with Europian Comission Stategy
  - Reduce CO2 emissions
  - Replace imported fuel and contributes to security of supply of energy.

THANK YOU
YOU ARE WELCOME TO TRAKAI

Speaker: Chief Specialist of Trakai District Municipality Inga Neverovskiene

4 Presseberichte/Press Reports

MZ, 19.03.2014

Startschuss für Klimakonferenz

Vertreter von Bernburgs Partnerstädten treffen sich im portugiesischen Leiria.

VON ALEXANDRA KOCH

BERNBURG/MZ - Heute fällt der Startschuss zur vierten Konferenz mit dem Titel „Climate Partnership - Städtepartner übernehmen Klimaverantwortung".

Im portugiesischen Leiria werden dazu insgesamt neun Vertreter aus Bernburg dabei sein. Darunter sind Holger Dittrich vom Amt für Wirtschaftsförderung und Stadtentwicklung der Stadt Bernburg und Tilo Wechselberger, Verantwortlicher des Verbandes Naturpark „Unteres Saaletal". Das Partnerschafts-Komitee der Saale-Stadt stellt die Mehrzahl der Teilnehmer, die in Portugal auf Delegationen aus Rheine, dem litauischen Trakai und dem niederländischen Borne treffen werden.

Gemeinsam Ideen zu entwickeln und neue Formen der Kooperation zu finden, sind Ziele des Austausches unter der Regie des Transferzentrums für angepasste Technologien Rheine (TAT).

Die Geschäftsführerin Ursula Schäfer-Rehfeld hatte die Finanzierung des Projektes durch die Europäische Union sowie dem Ministerium für Umwelt, Naturschutz und Reaktorsicherheit sicher gestellt und Bernburg als langjährige Partnerstadt Rheines mit ins Boot geholt.

Zur heutigen Eröffnungssitzung wird Jorge Moreira da Silva, der portugiesische Minister für Umwelt, Gebietsplanung und Energie erwartet.

Der Erfahrungsaustausch über die Handhabung und Lösung von Problemen ist das Anliegen der Initiative, die Momente der Interaktion in Workshops vorsieht. Die Möglichkeit zum europäischen Vergleich auf lokaler Ebene ist das Besondere des Projektes. Das heißt, dass die Städte vor gleichen Problemen stehen.

Die unterschiedlichsten Städte - von Leiria im Westen Europas, über Borne, Rheine und Bernburg, bis Trakai in Osteuropa - haben so die Möglichkeit, voneinander zu lernen. Beispielsweise konnten in Bernburg einige Erkenntnisse aus dem niederländischen Borne umgesetzt werden, was die Radwege in der Stadt betrifft.

Dabei waren bereits in der Vergangenheit Themen wie Energieeffizienz und Ressourceneinsparung, die „Ver- und Entsorgung von Wasser und Abfall", sowie „Verkehr und Tourismus" im Zentrum der Bemühungen, die im Oktober 2012 mit der ersten „KlimaPartnerschafts-Konferenz" in Bernburg ihren Anfang nahmen.

Vom 24. bis 28. Juni wird in Rheine das fünfte und letzte Treffen organisiert. Bernburgs Oberbürgermeister Henry Schütze hat seine Präsenz da bereits zugesichert. Inhaltlicher Schwerpunkt wird dann „Stadtplanung, Flächenmanagement und Bürgerbeteiligung" sein.

Weitere Informationen im Internet unter:
www.climate-partnership.eu

Algen statt Brot

KLIMAKONFERENZ Vertreter aus Bernburg informieren sich im portugiesischen Leiria unter anderem über Nahrungsmittel der Zukunft.

VON ALEXANDRA KOCH

BERNBURG/LEIRIA/MZ - Tief grün sind die getrockneten Algen im Sack. Sie sollen als Nahrungsmittel dienen und durch den Kohlendioxid-Ausstoß eines Zementwerkes gedeihen. Das klingt nach Zukunfts-Musik - ist aber keine! Im portugiesischen Leiria gibt es ein Pilotprojekt, das sich mit eben dieser Möglichkeit der Abgasverringerung und -nutzung beschäftigt. Wie das genau vonstatten gehen soll, ist allerdings streng geheim. Auch Kameras sind in der Industrie-Anlage von Pataias nicht erwünscht.

> „Bei den erneuerbaren Energien sind wir gut aufgestellt."
>
> *Holger Dittrich*

Diese und viele andere Ideen wurden bei der Klimakonferenz „Climate-Partnership" in der vergangenen Woche in Portugal vorgestellt. Unter anderem auch den Vertretern aus Bernburg, aber auch aus dem litauischen Trakai und dem niederländischen Borne. Ziel war es, sich über lokale Folgen des Klimawechsels auszutauschen und gemeinsam entsprechende Lösungsansätze zu diskutieren.

In Portugal zeigt sich der Klimawandel durch die Zunahme von Stürmen, die an der Küste zum Abtragen der Sandstrände führen. Hitzewellen werden in Zukunft tendenziell zunehmen und Niederschläge abnehmen. So wird es in Portugal immer häufiger zu Waldbränden kommen. Das machte Professor Filipe Duarte Santos als Klimaexperte während seines Vortrages im Miguel Franco Theater deutlich. Unterdessen stellte Tilo Wechselberger, Fachdienstleiter für Kreis-und Wirtschaftsentwicklung, den Stand des Salzlandkreises im Bezug auf erneuerbare Energien vor: Im europäischen Vergleich konnte hier das beste Ergebnis präsentiert werden. Denn 70 Prozent des gesamten Energiebedarfs kann im Salzlandkreis durch erneuerbare Energien abgedeckt werden.

Den größten Anteil daran haben die Windparks. Hier arbeiten aktuell 388 Turbinen, die 627 Megawatt produzieren. Die Strom-Produktion durch insgesamt 22 Biogas-Anlagen liegt mit 27 Megawatt hinter diesem Wert. Auch die Nutzung der Solar- und Wasser-Energie spielt eine Rolle, allerdings nur eine untergeordnete. Erstmalig führt Clemens Schöpker als Präsident des Städtepartner-Vereins, dem auch Bernburg angehört, die Delegation aus Rheine an. Er löste zu Beginn dieses Monats Jules Vleugels ab, der lange den Vorsitz inne hatte. Um die Beziehungen zu den Partnerstädten aufzufrischen, waren gleich mehrere Vertreter aus der Saalestadt dabei. Uwe Hennig, Christa Eckert, Christa Enge, Erdmute Chipczynska, Sieglinde Krause und Jens Kramersmeyer vertraten Bernburg, genauso wie Holger Dittrich als Vertreter der Verwaltung. Er übernahm auch die repräsentativen Aufgaben. Dazu gehörte es beispielsweise, zum „World Tree Day" am vergangenen Freitag im „Santo Agosthino"-Garten von Leiria einen Baum zu pflanzen. Im Allgemeinen stellte er fest: „Was erneuerbare Energien betrifft, sind wir gut aufgestellt. Da kann man stolz drauf sein." Allerdings stellte die Konferenzsprache Englisch für alle Teilnehmer eine besondere Herausforderung dar.

Ende Juni wird es in Rheine das fünfte und letzte Treffen geben. Bereits in Leiria überlegten die Organisatoren, wie das Austausch-Projekt fortgesetzt werden kann. Junge Menschen aus den Partnerstädten für das Thema Klima zu sensibilisieren, könnte eine Möglichkeit sein.

Weitere Informationen unter: **www.climate-partnership.eu**

DATEN

Superlative im Salzlandkreis

Seit Jahren wird im Salzlandkreis auf die Erzeugung von Strom durch erneuerbare Energien gesetzt. So befindet sich unter anderem der größte Windpark in Sachsen-Anhalt in Biere. Außerdem steht das höchste Windrad mit einer Gesamthöhe von 180 Metern in Egeln. Die Biogas-Anlage in Könnern produziert im Jahr 39 Millionen Kubikmeter Biogas.

Die Bernburger Wasserkraftwerke „Papierfabrik" und „Saalemühle" erzeugen eine Leistung von 810 Kilowatt. AKO

Blick ins Werk von Leiria

KLIMASCHUTZ Bernburgerin tauscht in der portugiesischen Stadt Erfahrungen mit Verantwortlichen aus. Sie war 30 Jahre im Zementwerk der Saalestadt beschäftigt

VON ALEXANDRA KOCH

LEIRIA/MZ - „Hier bin ich zu Hause", sagt Erdmute Chipczynska aus Bernburg inmitten einer Industrieanlage. Diese befindet sich etwa 2500 Kilometer von ihrer Heimat entfernt. Als Mitglied des Bernburger Partnerschaftskomitees ist sie im portugiesischen Leiria zu Gast, wo in der Vorwoche die Konferenz „climate partnership" tagte.

Zusammen mit weiteren acht Teilnehmern aus Bernburg sowie Delegationen aus Rheine, aus dem litauischen Trakai und dem niederländischen Borne besucht die Expertin für Baustoffe das Firmengelände des Zementwerkes mit dem Namen „Secil Maceira-Liz" nahe der Stadt, die 40 000 Einwohner zählt. Das technische Know-how der Zementproduktion ist der Ingenieurin vertraut, hatte sie doch von 1972 an über 30 Jahre lang im Bernburger Zementwerk gearbeitet. Den Ausführungen des portugiesischen Produktionsmanagers Vitor Henriques folgte sie gespannt. Erdmute Chipczynska war dank ihrer Erfahrung in der Lage, die Gegebenheiten vor Ort mit dem Werk in der Saalestadt zu vergleichen.

Erdmute Chipczynska ist auch heute noch auf aktuellem Stand. Ab und zu, zuletzt vor 14 Tagen, gibt es im Bernburger Werk „Führungen für uns alte Hasen" und damit meint sie ihre ehemaligen Kollegen aus der Fabrik. „Autoreifen werden da nicht mehr verbrannt", stellt die in Lübbenwalde geborene Frau vor einem riesigen Berg der abgenutzten Gummimantel fest.

Erdmute Chipczynska im Gespräch mit Vitor Henriques, Produktionsmanager im Zementwerk von Leiria. FOTO: KO

Hydraulische Hammer statt Sprengungen heißt es hier im Tagebau, wo der zur Zementherstellung benötigte Kalkstein abgebaut wird. Den Energiebedarf für die Produktion zu senken und den Kohlendioxid-Ausstoß zu verringern, seien Aufgaben, die es in den Werken beider Länder zu bewältigen gilt, so Erdmute Chipczynska zu den Gemeinsamkeiten der beiden europäischen Zement-Produktionsstandorte.

WIRTSCHAFT

Vergleichszahlen

Portugals Fläche beträgt 92 000 Quadratkilometer. Im Land leben 10,6 Millionen Menschen. Das Bruttoinlandsprodukt beträgt 165 Milliarden Euro. Das Land verfügt über Rohstoffe: Eisenerz, Kupfer, Zink, Zinn, Wolfram, Silber, Gold, Uran, Marmor, Ton, Gips, Salz.

Deutschlands Fläche umfasst 357 000 Quadratkilometer. Hier leben 81 Millionen Menschen. Das Bruttoinlandsprodukt, der Wert aller in einem Jahr hergestellten Waren und Dienstleistungen betrug im Vorjahr 2,7 Billionen Euro. Die BRD ist ein Exportland. AB

Plantação de árvore
Os participantes na conferência 'Recursos energéticos renováveis', que está a decorrer em Leiria, participam amanhã na plantação de uma árvore no Jardim de Santo Agostinho, no âmbito das comemorações do Dia Mundial da Árvore.

Ciclovias da nascente à foz dos rios Lis e Lena

Projecto pode juntar Câmaras de Leiria, Marinha Grande, Batalha e Porto de Mós na construção de ciclovias nos dois rios

João Paulo Silva

As câmaras de Leiria, Batalha, Marinha Grande e Porto de Mós estão a estabelecer contactos para a construção de ciclovias nos rios Lis e Lena, da nascente à foz. A novidade foi avançada ontem ao Diário de Leiria por Raul Castro, à margem da quarta conferência 'Recursos energéticos renováveis', promovida pelo projecto 'Cidades Geminadas e Responsabilidade Climática', que decorre desde ontem em Leiria.

"É um projecto que queremos desenvolver", disse ao Diário de Leiria o presidente da Câmara, acrescentando que o desafio já foi apresentado aos presidentes da Câmara da Batalha, Marinha Grande e Porto de Mós, para desenvolvimento de um projecto que abranja os quatro municípios – uma ciclovia nas margens do Lis e do Lena, até à foz, na Praia da Vieira.

Autarquia pretende prolongar ciclovia até à foz do Lis

"Foi lançado o desafio e há receptividade para isso", acrescentou.

No caso do Lis, a ciclovia teria início nas Cortes, na nascente, e nos casos de Porto de Mós e Batalha o alvo seria o rio Lena, um afluente que nasce no concelho de Porto de Mós, em plena serra de Aire e Candeeiros, passando depois pela Batalha, até se juntar ao Lis, em Leiria, após percorrer um percurso de pouco mais de vinte quilómetros.

Para já o projecto depende ainda da obtenção de financiamento comunitário para avançar. Raul Castro explicou ao Diário de Leiria que existe um estudo prévio que no caso de Leiria aponta para um investimento na ordem de um milhão de euros, verba que deverá chegar aos dois, para a totalidade do projecto. No entanto, realça que se trata apenas de uma estimativa, e que logo que "abra o quadro comunitário" será apresentada a candidatura relativa a Leiria. «

Projecto cidades geminadas

O projecto 'Cidades Geminadas e Responsabilidade Climática', que teve início a 1 de Julho de 2012 e termina a 30 de Junho deste ano, integra as cidades de Leiria, Bernburg (Alemanha), Borne (Holanda), Rheine (Alemanha) e Trakai (Lituânia), e "pretende contribuir para a partilha de experiências e conhecimento das realidades locais relacionadas com a protecção climática, envolvendo a comunidade civil, académica, científica e os poderes públicos locais e nacionais", faz saber o município de Leiria.

No âmbito do projecto realizaram-se já três conferências, em Bernburg, sob o tema 'Eficiência Energética e Conservação de Recursos', em Trakai, com o tema 'Turismo e Mobilidade', e em Borne, intitulada 'Água e Gestão de Resíduos'.

Crise obriga a mais eficiência no uso dos recursos, defendeu secretário de Estado do Ambiente

O secretário de Estado do Ambiente afirmou ontem, em Leiria, que a crise obriga as pessoas a serem mais eficientes no uso dos recursos e considerou que a sustentabilidade das cidades passa pela água, energia, resíduos ou clima.

"Devemos encarar a crise como uma oportunidade, porque a crise obriga-nos a ser mais eficientes. A eficiência no uso dos recursos é uma maneira de poupar", afirmou Paulo Lemos, à margem da 4.ª conferência "Recursos energéticos renováveis".

Referindo que o país reduziu "12 por cento das emissões desde 2005, o PIB não baixou 12 por cento", Paulo Lemos notou ter havido "um esforço grande por parte das empresas e dos lares de mais eficiência".

"E quanto mais eficientes formos, menos custos temos e quanto menos custos temos mais competitivos somos em relação aos nossos concorrentes", referiu o secretário de Estado.

Paulo Lemos realçou o esforço de eficiência energética das pessoas e empresas resultante da crise

Questionado se a crise é boa para o ambiente, Paulo Lemos respondeu: "A crise contribui para percebermos que os recursos são escassos e que temos de os gerir de uma forma mais eficiente".

Sobre a possibilidade de o país se tornar exportador de energia solar, Paulo Lemos explicou que Portugal está a tentar que "a nível europeu se estabeleçam metas de interconexões" para ser possível a todos os países trocarem energia.

"Se tivéssemos boas interconexões estávamos a exportar já energia, porque neste inverno tivemos energia em excesso, quer hídrica, quer do vento", exemplificou.

Notando que o país tem "um grande potencial solar" que pode "rapidamente colocar na Alemanha porque a energia exporta-se à velocidade da luz", Paulo Lemos salientou que esta matéria é "do interesse de Portugal" porque teria mais investimento estrangeiro e "é do interesse da Europa que consegue a um custo mais eficiente ter energia renovável e não depender das energias fósseis, muitas delas importadas de países que têm uma grande instabilidade política".

"Responsabilidade social das autarquias"

Na sessão de abertura da conferência, o presidente da Câmara de Leiria, Raul Castro, afirmou que "a responsabilidade social das autarquias exige hoje, mais do que nunca, uma aposta na área ambiental", pelo que é uma obrigação "o ordenamento do território, a defesa e a proteção dos recursos naturais" ou políticas de sensibilização e prevenção.

"Esta certeza traduz, no nosso caso, a ideia simples de que a qualidade de vida da população de Leiria tem que estar sempre na linha da frente da acção municipal", declarou, salientando que nesta matéria "a vizinhança de outros municípios determina a adopção de uma "filosofia de cooperação".

A este propósito, Raul Castro apontou que é a cooperação, mas também a vontade: "Só assim é possível fazer frente à água que inundou várias áreas agrícolas e equipamentos, gerando prejuízos elevados" e "garantir a protecção de património natural, de bens e pessoas na praia do Pedrógão, que tem vindo a ser assolada pela força da natureza, com elevados prejuízos", acrescentou o autarca.

A conferência é promovida pelo projecto "Cidades Geminadas e Responsabilidade Climática", que integram além de Leiria as cidades de Bernburg (Alemanha), Borne (Holanda), Rheine (Alemanha) e Trakai (Lituânia).

O objectivo é a partilha de experiências e conhecimento dos projectos locais relativos à proteção climática, adiantou a sua coordenadora, Ursula Schäfer-Rehfeld. «

Klimakonferenz in Leiria eröffnet: Auch Rheine stellt Projekte vor

Mit einer zwölfköpfigen Delegation ist Rheine bei der Klimakonferenz in Leiria (Portugal) vertreten. Gemeinsam mit allen fünf Netzwerkpartnern aus den vier Partnerstädten Bernburg (D), Borne (NL), Leiria (PT), Rheine (D) und Trakai (LT) wurde die Konferenz am gestrigen Mittwoch in Leiria eröffnet. Thema dieser Klima-Konferenz ist „Erneuerbare Energien". Unter diesem Themenschwerpunkt präsentieren alle Partner ihre derzeitigen Aktivitäten auf diesem Gebiet und Leiria veranschaulicht die Arbeit vor Ort durch Exkursionen. Ziel der Konferenz ist der Erfahrungs- und Wissensaustausch auf dem Gebiet des Klimaschutzes, um voneinander zu lernen und miteinander Lösungen zu suchen.

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Rheiner Klimaschützer in Portugal

Erneuerbare Energien und Vertiefung der Städtebeziehungen auf Tagesordnung der Klimakonferenz in Leiria

Delegationen der Partnerstädte trafen sich zur Konferenz im Projekt „Klima-Partnerschaft – Städtepartner übernehmen Klimaverantwortung"in Leiria.

RHEINE/LEIRIA. Mit einer zwölfköpfigen Delegation war die Stadt Rheine in der vergangenen Woche zur inzwischen 4. Konferenz im Projekt „Klima-Partnerschaft – Städtepartner übernehmen Klimaverantwortung" in Rheines Partnerstadt Leiria nach Portugal gereist. Vertreten haben die Stadt der Erste Beigeordnete Jan Kuhlmann, der stellvertretende Bürgermeister Karl-Heinz Brauer sowie Clemens Schöpker, der erst Anfang März zum neuen Vorsitzenden des Städtepartnerschaftsvereins der Stadt Rheine gewählt wurde, sowie weitere Vertreter aus Rat, Verwaltung und Verein. „Erneuerbare Energien" war das Schwerpunktthema der dreitägigen Konferenz in Leiria, die seit 1996 Rheines Partnerstadt ist.

Die Konferenz möge einen Beitrag dazu leisten, die gemeinsame Arbeit in den Klimas- und Umweltschutz zu vertiefen und zu verbessern, so formulierte Leirias Bürgermeister Raul Castro seine Erwartungen zum Konferenzauftakt. Dass diese Erwartungen erfüllt wurden, zeigte der Verlauf der Tagung mit einer gelungenen Kombination aus Fachvorträgen und Exkursionen. Prominenter Gast zu Konferenzbeginn war der portugiesische Staatssekretär für Umwelt, Paul Lemos. Er versetzte das internationale Publikum mit der Tatsache in Erstaunen, dass in Portugal bereits rund 60 Prozent der Elektrizität aus erneuerbaren Energien stammen, womit Portugal im Spitzenbereich der EU-Länder liegt. Einflüsse und Anpassungsstrategien auf den Klimawandel in Portugal wurden von Filipe Duarte Santos präsentiert, der als Physikprofessor an der Universität Lissabon tätig ist und auf dem Forschungsgebiet des Klimawandels weltweite Anerkennung genießt.

Ganz praktisch konnten sich die insgesamt über 50 Konferenzteilnehmer vom Einsatz erneuerbarer Energien und Umweltschutzbemühungen bei Unternehmensbesichtigungen unter anderem in einer Zementfabrik und einem Abfallwirtschaftsbetrieb überzeugen.

Als gute Beispiele für den Klimaschutz hatte die Stadt Rheine Gelegenheit, das Netzwerk „Wind West" zu präsentieren. Netzwerkmanager Yassine Mokdad stellte das bei der Entwicklungs- und Wirtschaftsförderungsgesellschaft der Stadt Rheine angesiedelte, seit 2010 bestehende Netzwerk vor. Eine Vernetzung von regional und überregional im Bereich der Windenergie tätigen Unternehmen und Einrichtungen zu erreichen sei primäres Ziel, erklärte Mokdad. Darüber hinaus schaffe man mit dem Netzwerk eine Plattform für gemeinsame Öffentlichkeitsarbeit und für eine gemeinsame Interessensvertretung, um sich für eine Verbesserung von Rahmenbedingungen für Windenergie einzusetzen. Auch die vom Netzwerk initiierte Jobbörse zur Gewinnung von Fachkräften stieß bei den Teilnehmern auf großes Interesse.

Rheines Klimamanager Guido Wermers sprang kurzfristig für den erkrankten Christoph Ittermann von der Energie- und Wasserversorgung Rheine ein. Er stellte die Einsatzmöglichkeiten erneuerbarer Energien auf lokaler Ebene vor und warf einen Blick auf Wind- und Solarenergie sowie das Thema Elektromobilität, welches für Rheine in Zukunft an Bedeutung gewinnen werde.

Der neue Vorsitzende des Städtepartnerschaftsvereins, Clemens Schöpker, nutzte die Konferenztage gemeinsam mit Jules Vleugels, früherer Vorsitzender und jetzt Ehrenmitglied des Vereins, für Gespräche mit den Vertretern der Vereine und Partnerkomitees aus Bernburg, Borne und Trakai. Im Mittelpunkt standen dabei die Fortsetzung der bestehenden gemeinsamen Projekte wie die Qualifizierung in der Altenpflege in Kooperation mit dem Caritasverband Rheine oder die Fortsetzung der regelmäßigen Jugendaustauschprogramme, die die Basis für die Zukunft der Städtepartnerschaften legen. Mit Rheines niederländischer Partnerstadt Borne steht in Kürze ein Fachaustausch zum Thema „Sport" auf der Agenda, um die Kooperation mit Sportvereinen aus Rheine zu intensivieren.

Als guter Gastgeber präsentierte sich Leiria auch bei ebenfalls in das Konferenzprogramm integrierten Besichtigungen des Filmmuseums oder des Papiermühlenmuseums am Fluss Liz. Hier konnte nicht nur das Mahlen von Getreide bestaunt und ofenfrisches Brot probiert, sondern auch die Kunst des Papierschöpfens beobachtet werden. Als symbolisches Zeichen der gemeinsamen Verpflichtung für den Umweltschutz pflanzten die Vertreter aller Delegationen jeweils einen Baum im an das Papiermühlenmuseum angrenzenden Santo Agostinho Park in Leiria.

So zeigten sich alle Beteiligten zum Abschluss der Konferenz auch zufrieden, auf verschiedenen Ebenen etwas für die Stärkung und Weiterentwicklung des Städtepartnernetzwerkes erreicht zu haben. „Unser Projektziel, lokalen Wissens- und Erfahrungsaustausch zu initiieren, haben wir auch in Portugal erreicht", resümierte Projektleiterin Ursula Schäfer-Rehfeld vom TaT Rheine. Sie blickt gemeinsam mit den Verantwortlichen von Stadt und Verein nun mit Spannung auf die Abschlusskonferenz, die vom 25. bis zum 27. Juni 2014 in Rheine stattfinden wird.

Städtenetzwerk

Das Städtenetzwerk Rheine, Borne, Bernburg, Leiria und Trakai hat sich eine gemeinsame Arbeit zum Klimaschutz zum Ziel gesetzt. Im Projekt „Klima-Partnerschaft – Städtepartner übernehmen Klimaverantwortung" steht der Wissens- und Erfahrungsaustausch über lokalen Klimaschutz im Vordergrund. Jede Partnerstadt veranstaltet zu ihrem Schwerpunkt eine Konferenz mit Exkursionen und Workshops. Das Projekt startete im Juni 2012 und endet im Juni 2014 und wird unterstützt durch das Programm „Europa für Bürgerinnen und Bürger" der EU und wird gefördert durch das Bundesministerium für Umwelt, Naturschutz, Bau- und Reaktorsicherheit aufgrund eines Bundestags-Beschlusses.

5 Fotos/Photos


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