European Union
European Regional
Development Fund

RESINDUSTRY
Interreg Europe

DOSSIER

3RD RESINDUSTRY MEETING

On-line session

21 – 22 October 2020

CTU UCEEB

LAB University of Applied Sciences

eae agencia extremeña de la energía

Tartu Regiooni Energiaagentuur
Tartu Regional Energy Agency

ŚWIĘTOKRZYSKIE VOIVODESHIP

FH Vorarlberg
University of Applied Sciences

MINISTRY FOR GOZO

Index

3rd Interregional Event Summary

On 21 and 22 October 2020 the Czech Technical University in Prague, University Centre for Energy Efficient Buildings hosted the third event on-line, which included the second Master Class (MC2) and Interregional workshop (IW3) in the RESINDUSTRY project.

The event brought together project partners, local, regional and national stakeholders influential in the field renewable energy sources (RES) in industry.

On the first day, on Wednesday 21 October 2020 the Master Class led by the Polish partners was delivered to the project consortium. A Polish expert, Mr Tomasz Fiszer, the owner of the company Trade-Off guided project partners through various aspects of the Regional Assessment. The Regional Assessment (RA) will constitute a basic part of the Action Plan in each partner's region. Partners will deliver a draft of the RA Template and the template will be revised in the Semester 4 in the project.

The following day, Thursday 22 October 2020 was the date for the Interregional Workshop, which was hosted by CTU online. Project partners collated 70 examples of best practices in their regions and beyond within the first year of the project. From these examples the partners pre-selected 27 most interesting and inspiring ones to be presented at the interregional workshop. Project partners and their stakeholders scored all and selected 10 Best Practices for the Interreg Europe Policy Learning Platform.

Master Class 2 (MC2)

The second Master Class in the project was led by a Polish expert Mr Fiszer. Tomasz Fiszer is the owner of Trade-Off company and an energy market consultant on the use of RES in buildings and industry, energy audits, projects, certificates.

The Master Class was divided into three parts. In the first part, Mr Fiszer explained how the energy investment and energy management process works. In the second part project partners discussed some aspects of Market Analyses in their regions. During the third part of the Master Class, the expert talked about all actions concerning energy efficiency leading to the best use of the RES and promoting green energy when choosing sources of energy. In this part were presented to the project partners the RA Template. The RA is a necessary part of the Action Plan.

Polish expert offered to all project partners a helping hand with creating and filling the data to the template of the RA. He recommended that for the collating data is necessary to have two months at least. RA Template will be delivered to the project partners by LP.

European Union
European Regional
Development Fund

RESINDUSTRY
Interreg Europe

Interreg Europe RESINDUSTRY

"Policies for Renewable Energy Sources in industry"

INTERREG EUROPE - PGI06158

co-financed by the European Regional Development Fund (ERDF)

AGENDA

Master Class 2 (MC2)

Online

21 October 2020

9:00 – 9:15	**Registration**	**15 min**

9:15 – 10:30	**MASTER CLASS – INTEGRATED APPROACH TO LEARNING**	**75 min**

- Expert presentation of the "Strategic Analysis of RES Technologies applied in industries" – macro analysis of the industrial sector in the region, identifying the industry consumption profiles:
  - introduction to the analysis
  - the regional and national economic context
  - the national environmental context the energy context
  - the industry and the energy Regional Assessment assumptions – expert
- proposing KPIS/defining key performance indicators KPI for partners, aims to help measure progress in a more quantitative manner
- Knowledge about the approach to collect data, know-how decisions in different sectors of industry

10:30 – 10:40	**Break**	**10 min**

10:40 – 12:10	**MASTER CLASS – MULTILEVEL LEARNING**	**90 min**

- levels of learning
- actors involved in every level, agreeing on roles and responsibilities of stakeholders responsible for implementation, monitoring and evaluating actions
- activities created to reach the levels
    - workshop, Regional Assessment
    - Market Analysis
    - work on the RA template**,** training tools, practical exercises
    - Short presentation of MA from partners
        - description of the region, predominant sectors of industry in the region, potential of RES in region
        - actual state of development of RES in industry in the region
        - sources of financing RES/EE investments
        - next steps, plans of RES development in industry in the region due to RA

12:10 – 13:00	**LUNCH**	**50 min**

13:00 – 13:30	**MASTER CLASS – QUALITY OF LEARNING**	**30 min**

- existing quality structure
- quality tools of the project
- level of quality to be achieved by actions

13:30 – 14:30	**SUMMARY, QUESTIONS AND DISCUSSION**	**60 min**

- summary, key recommendations, overview of mechanisms (including financial) to support the RES policies implementation in industry sector.
- Discussion.

URZĄD MARSZAŁKOWSKI
WOJEWÓDZTWA ŚWIĘTOKRZYSKIEGO

Interregional Workshop 3 (IW3)

On Thursday 22 October 2020 CTU hosted the Interregional workshop 3 (IW3) online. Project partners collated 70 examples of best practices in their regions and beyond within the first year of the RESINDUSTRY project. From these examples the partners pre-selected 27 most interesting and inspiring ones to be presented at the Interregional workshop.

Project partners and their stakeholders from the organisations:

- Ministry of Industry and Trade (CZ)
- Adler Czech, a.s. (CZ)
- H.R.G. spol. s.r.o. (CZ)
- Regional Council of Päijät-Häme (FI)
- FCG Finnish Consulting Group (FI)
- Emececuadrados (ES)
- CTAEX (ES)
- AGF (ES)
- CIVITTA, partner (EST)
- Environmental Investment Centre (EST)
- Ministry of Environment (EST)
- Eco Voltaika (PL)
- Academy of Entrepreneurship LTD (PL)
- Regional Center for Innovation and Technology Transfer (PL)
- EkoEnergia (PL)
- University of Technology in Kielce (PL)
- Verdo Energy Systems Sp. z o. o. (PL)
- Przedsiębiorstwo Gospodarki Komunalnej w Końskich Sp. z o.o (PL)
- Zespół Opieki Zdrowowtnej w Końskich (PL)
- Doradztwo Energetyczne Trade-Off (PL)
- Ekoplon sp z o.o. sp.k. (PL)
- Chamber of Commerce (WKÖ) (AT)
- Energy Autonomy Programme 2050 (AT)
- FXB Group Industry (MLT)
- Magro Food Village (MLT)
- Methode Electronics (MLT)
- Malta Intelligent Energy Management Agency (MLT)
- MIEMA (MLT)
- University of Malta (MLT)
- Architecture & Civil Engineer Consultant (MLT)
- eBussed Project Leader (MLT)
- ecoGozo a Director (MLT)

were participated at this meeting.

At the beginning of the IW3 partners presented their best practices to partners and their stakeholders. CTU presented 6 BPs, LAB 4 presented 4 BPs, AGENEX presented 5 BPs, TREA presented 4 BPs, MOSR presented 2 BPs, FHV presented 4 BPs and MGOZ presented 2 BPs. Participants from these best practices chose the most interesting ones via online application Sli.Do. There were a rating system to score it from 1 to 10. After the voting, CTU got together results of the voting and presented results to the participants. After this LP (CTU UCEEB) talked about the conclusions and next steps regarding uploading the best practices to the Interreg Europe Policy Learning Platform and about the future steps in the project.

European Union
European Regional Development Fund

RESINDUSTRY
Interreg Europe

AGENDA

Interregional Workshop 3 (IW3)

On-line session

Thursday, 22 October 2020

Venue: On-line via MS Teams platform

Time: 10:00am – 12:00pm (local time in Prague)

10:00 – 10:10	**CTU: introduction agenda for IW3**	**10 min**
10:10 – 10:45	**Brief presentation of 30 Best Practices by project partners**	**35 min**
10:45 – 10:55	**Questions & Answers**	**10 min**
10:55 – 11:15	**Scoring and selection of Best Practices**	**30 min**

- Questions and answers
- Rules of scoring Best Practices
- Scoring of Best Practices

11:15 – 11:30	**Coffee Break**	**15 min**
11:30 – 12:00	**Results, conclusions and next steps**	**30 min**

Evaluation of Best Practices by project partners: pre-selected for IW3

Partner	Name of the Best Practice	Number of votes totally by project partners
CTU	Adler Czech a.s.	**7**
LAB	Fazer	**7**
AGENEX	ALUMASA	**6**
TREA	A Le coq	**6**
MOSR	HEKO	**6**
MGOZ	FXB Group Industry	**6**
CTU	Solar Process Steam at RAM Pharma Jordan	**5**
LAB	Labio	**5**
LAB	Halton	**5**
LAB	Suur-Savon Sähkö	**5**
AGENEX	TABACOEX	**5**
AGENEX	LA LAPA	**5**
TREA	Wet Wood waste boiler house with scrubbers_Civitta Eesti AS	**5**
TREA	Biogas production through anaerobic fermentation of waste water_Civitta Eesti AS	**5**
FHV	Wienerberger-Heat pump technologies for industrial drying	**5**
MGOZ	Magro Food Village	**5**
CTU	LUNA PLAST a.s.	**4**
CTU	ARBYD	**4**
CTU	Flat-Plate Solar Collectors at Fleischwaren Berger for Boiler Feed-water Preheating	**4**
CTU	H.R.G. spol. s.r.o.	**4**
AGENEX	BA GLASS	**4**
AGENEX	Bodegas López Morenas	**4**
TREA	EST_JAPS	**4**
MOSR	Końskie-PGK_Municipal Service Management	**4**
FHV	Fernwärme Frastanz	**4**
FHV	Göss Brewery	**4**
FHV	H2FUTURE (Voestalpine company)	**4**

ADLER Czech, a.s.

RESINDUSTRY Interreg Europe

Summary of the BP

- Leading suppliers of promotional textiles
- Photovoltaic power plant
- Cogeneration units
- Electric forklifts and electric vehicles
- Timescale: June - August 2019

RES type used

Policy instrument used

Operational Programme Enterprise and Innovations for Competitiveness 2014-2020

Parameter	Amount	Units
CO_2 Emissions saved	291,04	t/y
Installed power	296	kW
Investment costs per installed kW	3 000	EUR/ kW
Payback period	7-8	y
Total project costs	600 000	EUR

Evidence of Success/ Potential for Transfer

- In the case when battery are fully charged, the warehouse can operate for several hours
- In addition, the cogeneration unit is independent of the distribution system for several days in direct sunlight

22 October 2020, IW3 7

ARBYD CZ s.r.o.

RESINDUSTRY Interreg Europe

Summary of the BP

- Czech Furniture manufacture
- Subsidiaries in other 6 countries
- Wood residues from production are burned in the boiler
- Timescale: 10/2018-10/2019

RES type used

Policy instrument used

OP EIC Programme

Parameter	Amount	Units
CO_2 Emissions saved	80	t/y
Installed power	300	kW
Investment costs per installed kW	800	EUR/ kW
Payback period	19,6	y
Total project costs	240 000	EUR

Evidence of Success/ Potential for Transfer

- Reduction of annual operating costs by approximately 11.965 EUR
- Reduction in emissions of harmful substances into the air › improving the environment
- Increasing competitiveness and saving operating costs › possibility of further investment in production and sale › potential employment expansion

22 October 2020, IW3 8

H.R.G. spol. s.r.o.

RESINDUSTRY Interreg Europe

Summary of the BP

- **Modern printing plant**
- **Positive impact to the environment**
- **Timescale: 07/2018-01/209**

RES type used

Policy instrument used

OP EIC Programme

Parameter	Amount	Units
CO_2 Emissions saved	273	t/y
Installed power	303,6	kWp
Investment costs per installed kW	762,61	EUR/ kW
Payback period	14	y
Total project costs	231 539	EUR

Evidence of Success/ Potential for Transfer

- **Awards in the field of printing in the Czech Republic and abroad**
- **For the first year – 233.8 MWh was consumed, delivered to a network of 54.5 MWh › savings on unbought electricity of 12.308 €**

22 October 2020, IW3 9

LUNA PLAST, a.s.

RESINDUSTRY Interreg Europe

Summary of the BP

- **Production plant of the plastic pipes**
- **Battery system for energy storage and charging station**
- **Timescale: 04/2018 to 05/2019**

RES type used

Policy instrument used

OP EIC Programme

Parameter	Amount	Units
CO_2 Emissions saved	270	t/y
Installed power	300	kW
Investment costs per installed kW	1 130	EUR/ kW
Payback period	20	y
Total project costs	339 000	EUR

Evidence of Success/ Potential for Transfer

- **Reducing the economy costs**
- **Usage of the FVE to support the energy consumption of the factory**
- **Plan to use water energy**

22 October 2020, IW3 10

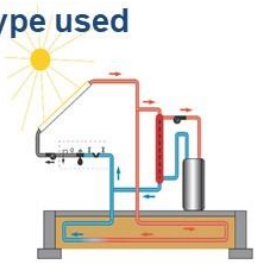
Solar Process Steam at RAM Pharma

RESINDUSTRY Interreg Europe

Summary of the BP

- **Major pharmaceutical company in Jordan**
- **Generate process steam**
- **Timescale:**
  11/2014 – 03/2015

RES type used



Policy instrument used

GIZ Programme

Parameter	Amount	Units
CO2 Emissions saved	84	t/y
Installed power	230	kW
Investment costs per installed kW	1 200	EUR/ kW
Payback period	7	y
Total project costs	360 000	EUR

Evidence of Success/ Potential for Transfer

- **System evaluated and approved by major international research institute for solar energy (German Aerospace Center)**
- **German develoPPP.de programme as a method to transfer and export technology to other regions**
- **Concentrated Solar Heat Award 2018**

22 October 2020, IW3 11

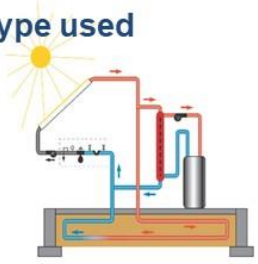
Fleischwaren Berger Ges.m.b.H.&Co KG

RESINDUSTRY Interreg Europe

Summary of the BP

- **Meat processing company**
- **Preheating of the boiler feed-water, warm-water used for cleaning processes**
- **Timescale: 06/2012-07/2013**

RES type used



Policy instrument used

EU FP-7 Project InSun, ARPA Subsidy

Parameter	Amount	Units
CO2 Emissions saved	165	t/y
Installed power	590	kW
Investment costs per installed kW	983	EUR/ kW
Payback period	N/A	y
Total project costs	790 000	EUR

Evidence of Success/ Potential for Transfer

- **The company spends around 2 million € for energy per year**
- **Fleischwaren Berger saves 62.500 l of fuel oil a year and preserves the environment by greenhouse gas Emissions of 163 tons › savings of 4-5 % on the company´s total fuel consumption**

22 October 2020, IW3 12

Labio biogas and composting plant

Short summary of the BP

Composting of waste from biogas production is used to heat the reactors of biogas plant

Policy instrument used:

Business Finland Energy Aid

RES type used:

Biomass

Evidence of success

1. Uses and produces renewable energy as well as natural fertilizer
2. 40 000 MWh of biogas per year
3. Plant is able to operate at a profit
4. 15 years without a single day of downtime

Parameter	Amount	Units
CO2 Emissions saved	11 000	t/y
Installed power	7850	kW
Investment costs per installed kW	2100	EUR/ kW
Payback period	25	y
Total project costs	17 M	EUR

22 October 2020, IW3

13

Fazer heat from waste biomass

Short summary of the BP

Fazer is a Finnish bakery and confectionery company. Processed oat hull mass from making of xylitol sweetener are burned for process heat and district heating

Policy instrument used:

None

RES type used:

Biomass

Evidence of success

1. Utilizes previously commercially unused material for both xylitol production and heating afterwards
2. Great example of circular economy
3. Replaces natural gas use

Parameter	Amount	Units
CO2 Emissions saved		t/y
Installed power	8000	kW
Investment costs per installed kW	1000	EUR/ kW
Payback period		y
Total project costs	8 M	EUR

22 October 2020, IW3

14

Halton geothermal heat pumps

RESINDUSTRY Interreg Europe

Short summary of the BP

Halton Marine factory producer of HVAC systems for ships, heats and cools itself using reversible geothermal heat pumps

Policy instrument used:

Business Finland Energy Aid

RES type used:

Geothermal

Evidence of success

1. 90 % reduction in emissions from heating
2. 35 % savings on heating energy
3. Replaces both heating and cooling systems saving money on separate investments
4. Cooling is so efficient that it exceeds process demands, allowing rest to be used for employee comfort in summer months

Parameter	Amount	Units
CO2 Emissions saved	103	t/y
Installed power	345	kW
Investment costs per installed kW	1750	EUR/ kW
Payback period	8-10	y
Total project costs	607 000	EUR

22 October 2020, IW3

15

Suur-Savon Sähkö Hybrid solar thermal-air heat pump

RESINDUSTRY Interreg Europe

Short summary of the BP

Combination of solar thermal collectors and air heat pumps produce district heating for town of Puumala

Policy instrument used:

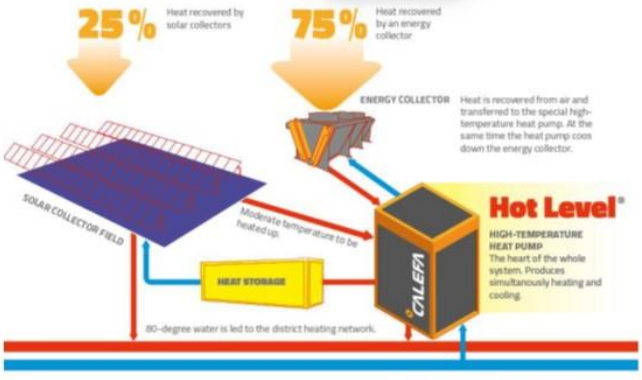
Business Finland Energy Aid

RES type used:

Solar thermal

Evidence of success

1. Oil use reduced by 30 000 liters per year
2. Works regardless of weather
3. Exceeded expectations of efficiency and profitability



Parameter	Amount	Units
CO2 Emissions saved	515	t/y
Installed power	500	kW
Investment costs per installed kW	1300	EUR/ kW
Payback period	~10	y
Total project costs	650 000	EUR

22 October 2020, IW3

16

Roof-top photovoltaic plant ALUMASA

RESINDUSTRY Interreg Europe

Summary of the BP

- Produce lacquered aluminium Rolls.
- The factory electricity energy consumtion is 9 GWh.
- 2 phases:
  - Phase 1: 3.204 PV modules. (425 Wp x module) Power produced 1,36 MWp.
  - Phase 2: 3.714 PV modules. (425 Wp x module) Power produced 1,67 MWp.

Policy instrument used:

Owners resources.

RES type used:

Photovoltaic panels (solar energy)

Parameter	Amount	Units
CO2 Emissions saved	782 + 958	t/y
Installed power	1,36 + 1,67	MWp
Investment costs per installed kW	599 (PH1+PH2)	EUR/kW
Payback period	11 (PH1+PH2)	y
Total project costs	1.814.046 (PH1+PH2)	EUR

Evidence of success

1. Study factory consumption thanks to an energy audit.
2. Viability of the installation.
3. Splitting into two phases.
   - Reduced CO2 emissions 782 Tn per year.
   - Reduced CO2 emissions 958 Tn per year.

22 October 2020, IW3 17

Biomass system. Tobacco dry house.

RESINDUSTRY Interreg Europe

Summary of the BP

- Dry tobacco industry.
- Production capacity of 1.000.000 kg.
- Installed one boiler house with a heating capacity of 11,4 MW.
- Consumption of 1.500 Tn of olive Stone from the región.
- Increasing the drying capacity from 59 dry houses to 77. Producing 1.000.000 kg.

Policy instrument used:

Decree 83/2010"

(Based on the Rural development program EAFRD 2007-2013)

RES type used:

Biomass

Parameter	Amount	Units
CO2 Emissions saved		t/y
Installed power	11,4	MW
Investment costs per installed kW	24,78	EUR/kW
Payback period	3 - 4	y
Total project costs	282.530	EUR

Evidence of success

1. Energy savings.
2. Biomass as fuel, coming from wastes materials.
3. Optimization of the different phases of the process.

22 October 2020, IW3 18

LA LAPA´S Mini biogas plant station

Summary of the BP

- Standarized Mini biogas plant station.
- Reuse the wastes of the industries.
- It can process up to 1000 kg per day of organic waste.
- Mini biomethane plant.

Policy instrument used:

Centre of the Development of Industrial Technology (CDTI) funding. "CDTI innovative growth" co-financing with FEDER

RES type used:

Biogas and Biomethane.

Parameter	Amount	Units
CO2 Emissions saved		t/y
Installed power	1	Tn/day
Investment costs per installed kW		EUR/kW
Payback period		y
Total project costs	300.000	EUR

Evidence of success

1. Model of circular and profitable economy.
2. Decentralize waste management.
3. Simple and flexible feeding system.
4. Standardization of the plant, (serial production)

22 October 2020, IW3 19

Biggest roof-top photovoltaic installation in Spain. BA GLASS

Summary of the BP

- Glass factory. (Barbosa&Almeida BA)
- Rate production 1075 Tn/day.
- Installed capacity 8.035 kWp
- 21.560 PV modules (375 Wp x module)
- 85.000 m2 of the factory´s roof.

Policy instrument used:

Owners resources.

RES type used:

Photovoltaic panels (solar energy)

Evidence of success

1. Reduce 12% of the electricity consumption.
2. One of the biggest roof-top PV installation.

Parameter	Amount	Units
CO2 Emissions saved	4.648,87	t/y
Installed power	8.085	kWp
Investment costs per installed kW	560,43	EUR/kW
Payback period		y
Total project costs	4.531.040,99	EUR

22 October 2020, IW3 20

Biomass boiler + rooftop PV plant in a winery "Bodegas López Morenas"

RESINDUSTRY
Interreg Europe

Summary of the BP

- Winery with a rate production 100.000 million litres per year.
- 1st Install a biomass boiler to produce termal energy. 1.500 kW. (2015)
- 2nd PV installation with a capacity 400 kW.(2020)

Policy instrument used:

Owners resources.

RES type used:

Photovoltaic panels (solar energy)

Biomass

Evidence of success

1. Circular economy model.

Feeding the boiler with olive stones from the área.

2. Merge of RES.

Parameter	Amount	Units
CO2 Emissions saved	859,6	t/y
Installed power	1.500 kW (BM) 400 kW (PV)	kW
Investment costs per installed kW	167 (BM) 650 (PV)	EUR/kW
Payback period	4	y
Total project costs	250.000 (BM) 260.000 (PV)	EUR

Biogas production plant based on brewery's wastewater

RESINDUSTRY Interreg Europe

BIOGAS

Summary of the BP

- **Brewery's biogas production plant to reduce the burden on the city's wastewater network and increase the company's resource efficiency.**
- **2020-2021**

Parameter	Amount	Units
Installed power	620	Nm^3
Investment costs per installed kW	4000	€/Nm^3
Payback period (SPP) no grant	13	y
Payback period (SPP) with grant	4,5	y
Total project costs	2,5	M€

50% grant

Evidence of Success/ Potential for Transfer

- **In addition to reducing wastewater disposal costs and its environmental impact the plant is also economically profitable for the company. Some of natural gas imported to produce heat can be replaced by biogas produced on site (100% of biogas produced on site are used on site for heating)**

22 October 2020, IW3 22

Wet wood waste boiler house with scrubbers in door factory

RESINDUSTRY Interreg Europe

WOOD

Summary of the BP

- **Utilize all wood scraps for heat generation for the wood driers and increase the efficiency of the boiler through implementation of scrubbers to meet factory's increased production volume.**
- **2020-2021**

Parameter	Amount	Units
Installed power	4000	kW
Investment costs per installed kW	850	€/kW
Payback period (SPP) no grant	7,8	y
Payback period (SPP) with grant	5,8	y
Total project costs	3,4	M€

25% grant

Evidence of Success/ Potential for Transfer

- **New boiler allowed to use all production residues more effectively and cover heat demand without external sources.**
- **Increased demand for heat was met by increased efficiency of the boiler through implementation of scrubbers (80 to 90%) even if capacity of boiler remained same as old.**

22 October 2020, IW3 23

Biogas production through anaerobic fermentation of waste water and whey in diary products factory

RESINDUSTRY Interreg Europe

BIOGAS

Summary of the BP

- **Installment of the biogas plant to enable to produce biogas through anaerobic fermentation of waste water and whey (production waste).**
- **End 2020**

30% grant

Parameter	Amount	Units
Installed power	3.000	m^3/day
Investment costs per installed kW	2.000	€/m^3
Payback period (SPP) no grant	11,2	y
Payback period (SPP) with grant	7,8	y
Total project costs	6	M€

Evidence of Success/ Potential for Transfer

- **Gas produced will be used for steam production for the manufacturing process and replace shale oil usage.**
- **Usage of this organic waste for biogas production enables to move the company to circular economy.**
- **Biogas terminate the usage of shale oil and decrease sewage sludge pollution load**

22 October 2020, IW3 24

Solar panels and electric forklift in the fishing industry

RESINDUSTRY Interreg Europe

PV

Summary of the BP

- **100 KWp PV panels installation with purchase of electric forklift to increase self-consumption and working environment**

PV (with roof reinforcement)

50% grant

Parameter	Amount	Units
Installed power	100	kWp
Investment costs per installed kW	1000	€ / kWp
Payback period (SPP) no grant	>25 >15	y
Payback period (SPP) with grant	21,3 5,7	y
Total project costs	1) 100000 (inc. 30000 reinf.) 2) 28000	€

Evidence of Success/ Potential for Transfer

- **Usage of electric forklift that increase self-consumption of produced renewable energy and working environment**
- **Electric forklift is more effective and CO_2 emissions are reduced compared with old petrol forklift.**
- **With the construction of PV panels, the price of electricity is fixed more many upcoming years.**

22 October 2020, IW3 25

A PV power plant of up to 1MW at HEKO Plastics and Various Products Plant, POLAND

Rzeczpospolita Polska

RESINDUSTRY Interreg Europe

Short summary of the BP

- HEKO is a medium-sized family company which specialises mainly in the production and distribution of various types of car fairings.
- The licence for the installation was received in October 2018. 01.07.2019 – the panels were installed
- The installation produces energy of about 800 MWh.

Policy instrument used: ROP of the Świętokrzyskie Voivodeship 2014-2020

RES type used:

Evidence of success/potential for learning or transfer

The generator source uses a security feature that includes:

- undervoltage and overvoltage protection,
- phase sequence and phase monitoring.

If the monitored frequency and voltage parameters deviate from the set limits, the photovoltaic power source is immediately disconnected from the power grid. The solar system is disconnected until the parameters return to the set limits.

Parameter	Amount	Units
CO2 Emissions saved	872 since May 2019	t/y
Installed power	849.96	kW
Investment costs per installed kW	645.31	EUR/ kW
Payback period	4 – 5	y
Total project costs	657,854. 38	EUR

Photovoltaic panels in the Municipal Service Management Company sp. z o.o.

Rzeczpospolita Polska

RESINDUSTRY Interreg Europe

Short summary of the BP

- Municipal Service Management Company sp. z o.o. provides services to the town and municipality residents in the field of waste transport and storage.
- The project was implemented from August 2018 to the end of February 2019.
- The installation consists of 2240 polycrystalline modules with a capacity of 280 Wp and 14 inverters and produces energy of about 800 MWh.

Policy instrument used: ROP of the Świętokrzyskie Voivodeship 2014-2020

RES type used:

Evidence of success/potential for learning or transfer

The method of setting up (building) of the photovoltaic installation is very unconventional, because it is located on the canopy of a reclaimed storage yard – in other words on the "top of the hill of garbage." This way of location is a sensation on a national and European scale – a case of practical use of land, which until now was useless and generated costs in the form of property tax.

Parameter	Amount	Units
CO2 Emissions saved	599,54	t/y
Installed power	627.20	kW
Investment costs per installed kW	865.29	EUR/k W
Payback period	6 to 7	y
Total project costs	542,690.04	EUR

Fernwärme Frastanz

Summary of the practice:

- **A biomass heat project using industrial and agricultural wood waste to produce heat for the municipality of Frastanz in Vorarlberg, Austria**
- Timespan: 2009-2011
- Policy instrument used:
  Structural EU funds – ERDF, e5 program

RES type used: Biomass energy

Parameter	Amount	Units
Installed power	3.3	MW
Investment costs per installed kW	930	EUR/ kW
Total project costs	3.1 Mil	EUR

Municipality of Frastanz | Vorarlberg, AT

Evidence of success

In Austria, the third of its energy is generated by renewable energy sources.

Requriements for the modernization of Austria's **grid system**.

Frastanz municipality follows the pattern by meeting **encountered demands**.

Significant **public response** – the project offered customer a very good price levels

22 October 2020, IW3

28

Göss Brewery

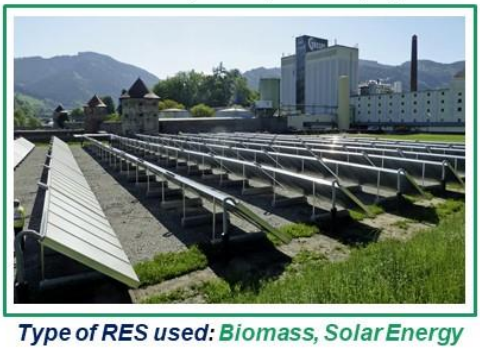
Summary of the practice:

- **Large-scale solar plants for various process steps**
- Timescale: 2009-2011

The mashing process connected to the adjacent biomass cogeneration plant

Retrofitting the existing mash tun with internal heat exchanger plates - "dimple plates"

Green Brewery Göss | Leoben, Styria



Type of RES used: Biomass, Solar Energy

Evidence of success:

The Energy Globe Austria Award

The EU Sustainable Energy Award

The EU Citizens Choice Award

Parameter	Amount	Units
Installed power	1	MW
Investment costs per installed kW	2000	EUR/ kW
Total project costs	2.3 Mil	EUR

29

Drypump:
Heat pump technologies for industrial drying

Summary:
The use of compression heat pumps for energy recovery of the water vapour, and its reuse in the production process

- Timespan: 2016 - 2020
- Policy Instrument used: ERDF
- Horizon 2020: The Energy Efficiency - "Valorization of waste heat in industrial systems

Wienerberger AG | Wien, AT

***RES used:** Thermal Energy*

Evidence of success:
- Novel approach in waste heat recovery
- *Recovery of at least **40%** of the sensible heat contained in each waste heat carrier*
- **100%** of the electricity used in the production of ceramic pipes from RES

Parameter	Amount	Units
Installed power	400	kW
Investment costs per installed kW	1400	EUR/ kW
Total project costs	6.6 Mil	EUR

30

H2FUTURE
Generation of green hydrogen from electricity from renewable energy sources

Summary:
Testing the potential applications for green hydrogen in the various process stages of steel production, and integration into the power reserve markets for the power grid.

***VOESTALPINE AG** | Linz, Upper Austria*

***RES used:** Green Hydrogen*

Evidence of success:
- EU award
- long-term realization of the technology transformation in the steel industry

Timespan: 2017 – 2021
Policy instrument: ERDF, Horizon 2020

Parameter	Amount	Units
Installed power	6	MW
Investment costs per installed kW	700	EUR/ kW
Total project costs	17.8 Mil	EUR

31

Installation of solar PV system at Magro Food Village

MINISTRY FOR GOZO

RESINDUSTRY Interreg Europe

Short Summary of the BP

- One of the largest food processing companies in Malta;
- Main production line is the processing of tomatoes, cheeses and dairy products;
- Invested in solar PV to generate clean energy and offset the energy required from the grid.

Policy instrument used:

- OP1 PA4: Climate Change and Resource Efficiency

RES type used: Solar Power

- 1,600 PV panels × 240 Wp

Evidence of success

1. One of the largest solar PV farms on top of industry building in Malta;
2. Energy Generated from the PV panels covers over 30% of the building's energy demand;
3. Offsets over 442 tonnes of carbon dioxide annually.

Parameter	Amount	Units
CO2 Emissions saved	442	t/y
Installed power	>380	kWp
Investment costs per installed kW	980	€/kW
Payback period	3.95	y
Total project costs	372k	EUR

22 October 2020, IW3

32

Installation of solar PV system at FXB Industrial Estate

MINISTRY FOR GOZO

RESINDUSTRY Interreg Europe

Short Summary of the BP

- One of the largest manufacturer of furniture in the domestic market;
- Operation of such manufacturing operations is quite energy intensive;
- Invested in solar PV and wind turbine to generate clean energy and offset the energy required from the grid.

Policy instrument used:

OP1 PA4: Climate Change and Resource Efficiency

RES type used: Solar & Wind Power

- 334 PV × 330 Wp
- 1 VAWT

Evidence of success

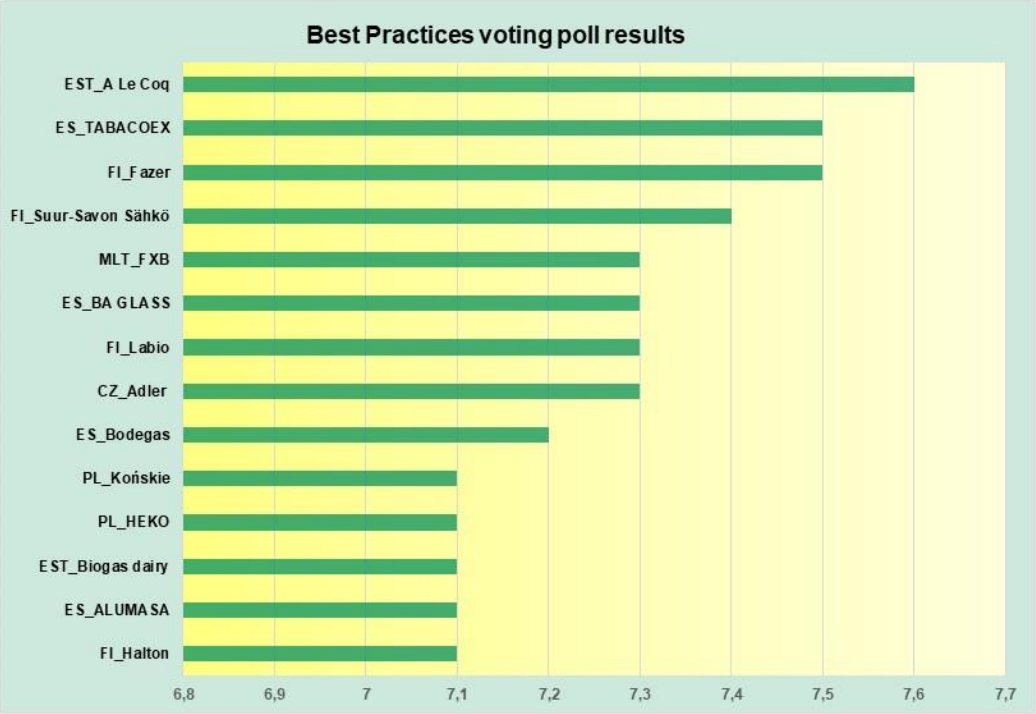
1. Energy Generated from the PV panels covers over 20% of the building's energy demand;
2. Offsets over 442 tonnes of carbon dioxide annually.

Parameter	Amount	Units
CO2 Emissions saved	112	t/y
Installed power	100.2	kWp
Investment costs per installed kW	1048	€/kW
Payback period	4.2	y
Total project costs	105k	EUR

22 October 2020, IW3

33

RESULTS



22 October 2020, IW3

38

RESULTS, CONCLUSIONS AND NEXT STEPS

- Policy Learning Platform: www.interregeurope.eu/policylearning/good-practices
- Expert Mission
- Inspiration for other regions

22 October 2020, IW3

39

Results from the scoring and selecting of the Best Practices via application Sli.Do