

## **Energy efficiency**



European Regional Development Fund



SB BRIDGE: Topic - Energy Efficiency

Please find below 20 examples on real, implemented green growth ideas in a field of **Energy Efficiency.** 

Examples are provided from these countries:

- Lithuania (4 units)
- Sweden (4 units)
- Denmark (4 units)
- Poland (4 units)
- Germany (4 units)



This material is prepared in accordance to INTERREG V-A South Baltic Programme project "SB BRIDGE – Building bridges for green tech future" (2019-2021)



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# 1. Lithuania, **BLACKSTAR**, **SoliTek**, 2020



Bifacial solar panels. An advanced double-sided solar panel that transforms sunlight into electrical energy on both – its top and bottom – sides

100% fireproof (class A) and totally recyclable

Achieved Cradel To Cradle certification, that approves our glass panels to be "greenest in the world"

https://www.solitek.eu/en



#### 2. Lithuania, **Termonerg, Enerstena,** 2016



Water heating boilers and steam boilers

Low hydraulic and aerodynamic resistance with low electricity consumption

The boilers are of a smoke-tube type with three courses, with an automated cleaning system for the heated surfaces using pressurised air

https://www.enerstena.lt/en/boilers-termonerg



### 3. Lithuania, Glassbel, 2015



Insulated glazing units with different options for outstanding thermal insulation

Triple insulated glass up to 100 mm in thickness "Warm" edge Argon and krypton filling

http://glassbel.com/products/insulated-glass/energy-efficiency/



### 4. Lithuania, Solid Solrif®, SoliTek, 2018



SOLID Solrif® is specially designed for integration into the rooftop where the glass/glass module acts as a large, strong and safe photovoltaic roof tile

Suitable for pitched roofs and carports with inclination 12°-70°

Self-cleaning effect





## 1. Sweden, Northvolt, 2017



Lithium-ion battery

Northvolt's battery cells and systems can be applied to many industries, such as the automotive and industrial industries

Offering portable battery-powered solutions for products such as screwdrivers, lawnmowers and bicycles

https://northvolt.com/



## 2. Sweden, Lepido, Enjay, 2020



Makes it possible to recover energy generated from restaurant ventilation that was previously wasted

The delivered effect per converted restaurant varies from 17 to 106 kilowatts, lowering the average annual emissions of  $CO_2$  by 34 metric tons

Lepido is free of maintenance, making every kilowatthour recycled a financial saving as well

https://swedishcleantech.com/companies/1892/enjay/





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## 3. Sweden, Ectogrid, E.ON, 2020



One of the principles behind ectogrid<sup>™</sup> is that one should harvest all thermal energy flows (heating and cooling) and balance them against each other

ectogrid<sup>™</sup> connects the city with a cool and flexible grid that distributes thermal energy flows between neighbors

http://ectogrid.com/business-customer/



## 4. Sweden, ReVibe Energy, 2020



Different sensor systems





Provides a mobile power source where electricity is created by harnessing surrounding vibrations and replaces batteries and cables as power sources for low current applications

https://swedishcleantech.com/companies/1006/revibeenergy-ab/

https://revibeenergy.com/



## 1. Denmark, Taarnby Forsyning, 2020



Established a district cooling system based on a central largescale electric heat pump installation and a chilled water storage tank as well as the additional benefits of using a heat pump in combination with ground source cooling and waste water

https://stateofgreen.com/en/partners/ramboll/solutions/smart-combination-ofdistrict-cooling-district-heating-and-waste-water-in-taarnby/



#### 2. Denmark, Sludge plant, Lynetten, 2011



A fluid-bed incinerator has been installed together with a modern flue gas cleaning system

The main part of the high temperature heat from the boiler is first used for pre-drying of sludge and the rest of it, plus the energy from the condensation, is used for district heating <u>https://stateofgreen.com/en/partners/ramboll/solutions/sludge-for-energy-in-</u> <u>copenhagen-biofos/</u>

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## 3. Denmark, eSnap, DEM, 2015



An innovative data driven solution to improve the quality of energy audits

Combining new technological options, such as IoT-sensors with artificial intelligence

Improves the building owner's basis for carrying out- and following up on possible energy saving initiatives

https://stateofgreen.com/en/partners/danish-energy-management/solutions/innovation-

promoting-energy-efficiency-through-technology-start-ups/



#### 4. Denmark, **Squid.link, Develco,** 2016



Helps to improve the management of peak loads and to enable smart grids to save more energy

Incorporating the IoT into energy management systems enables smart grids to save more energy, thus powering industrial and residential buildings more efficiently

Can be combined with wireless communication interfaces for meters in order to optimize the smart energy management solution from a consumer perspective

https://stateofgreen.com/en/partners/develco-costumized-products-for-companiessupplying-costumers-with-iot/solutions/2nd-gen-squid-link-gateway-the-shortcut-to-asmart-energy-solution/



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#### 1. Poland, Life Cogeneration, 2017



An innovative technology which enables the energy management of the over-sieve fraction of municipal waste and sewage sludge

Based on the gasification process

Gasification is the technological process consisting in the conversion of the solid fuel into gas by thermal decomposition in a controlled amount of oxygen or air

http://lifecogeneration.pl/news-reader/new-folder-lifecogeneration.html



#### 2. Poland, Vatra, GreenEvo, 2013



A heating-cooling device which collects heat from the ground and transforms into the energy used for heating and cooling buildings and heating tap water

Geothermal heat pumps are used by individual households as a heatingcooling device as well as by the industrial sector (greenhouses, cold rooms, swimming pools) for heating and cooling public utility buildings

https://greenevo.gov.pl/en/technologies/geothermal-heat-pumps/



## 3. Poland, Biogradex, 2014



The BIOGRADEX® technology is used to treat sewage with activated sludge

Can be used both in case of municipal and industrial sewage unless biological sewage treatment is not possible

The great advantage of that technology consists in the possibil ity to regulate the concentration of activated sludge in the tanks depending on the technological needs (in the winter - higher concentration, in the summer - smaller)

https://greenevo.gov.pl/en/technologies/activated-sludge-method-of-sewagetreatment/



#### 4. Poland, ACAV Hi-Eco, Inwent, 2014



The ACAV Hi-ECO technology is based on the use of highly efficient heat exchangers recovering up to 93% of heat or coolness in the air-to-air systems, which brings savings of up to 35% of energy consumed for heating or cooling

https://greenevo.gov.pl/en/technologies/technology-of-highly-efficient-heat-recovery-inthe-ventilation-systems/



## 1. Germany, SolarServer, ISE, 2020



Example of energy efficiency were land is used jointly for solar power generation and agriculture

Investigates the production of apples using a PV energy system alongside

https://www.german-energysolutions.de/GES/Redaktion/EN/News/2020/20200812-pv-on-apple-farms.html

https://www.solarserver.de/2020/07/31/rheinland-pfalz-foerdertagrophotovoltaik-mit-aepfeln/



## 2. Germany, MorphoColour, ISE, 2021



The technology gives solar modules a sleek, homogenous appearance and can either be used to create bright cladding or can be made to blend in with the shade of an existing facade or roof

Panels can absorb 93 percent of the sun's rays while reflecting back just 7 percent

https://www.german-energy-solutions.de/GES/Redaktion/EN/News/2021/20210119butterfly-wings-solar.html



## 3. Germany, Solstice, HZDR, 2021



A sodium/zinc battery

Based on liquid metals and molten salts

Store energy from the sun and wind on a large scale and provide it at night or in unfavorable weather conditions

https://www.hzdr.de/db/Cms?pOid=62679&pNid=99



### 4. Germany, EULE audit system, DBU, 2021



The EULE audit will recommend how solar parks can be optimised to be as in harmony with nature and the community as possible

#### A new biodiversity standard for solar parks

https://forschung.hswt.de/forschungsprojekt/1409-eule





#### Thank You for attention! SB BRIDGE – Building bridges for green tech future More info is available here: www.sbbridge.eu





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