

# "GREEN-BLUE-ENERGY FACTORY"

Contract number: IEE/10/232/S12.593827

Project duration: 1° June 2011 - 31 May 2014

Created March 2012



Unioncamere  
Veneto

# Project Summary

The project aims at promoting the concept of “**GREEN-BLUE-ENERGY FACTORY**”: industrial and commercial warehouses equipped with single or combined renewable energy sources, able to provide electricity and heating and cooling for the air conditioning of premises, as well as for the business activities housed within.

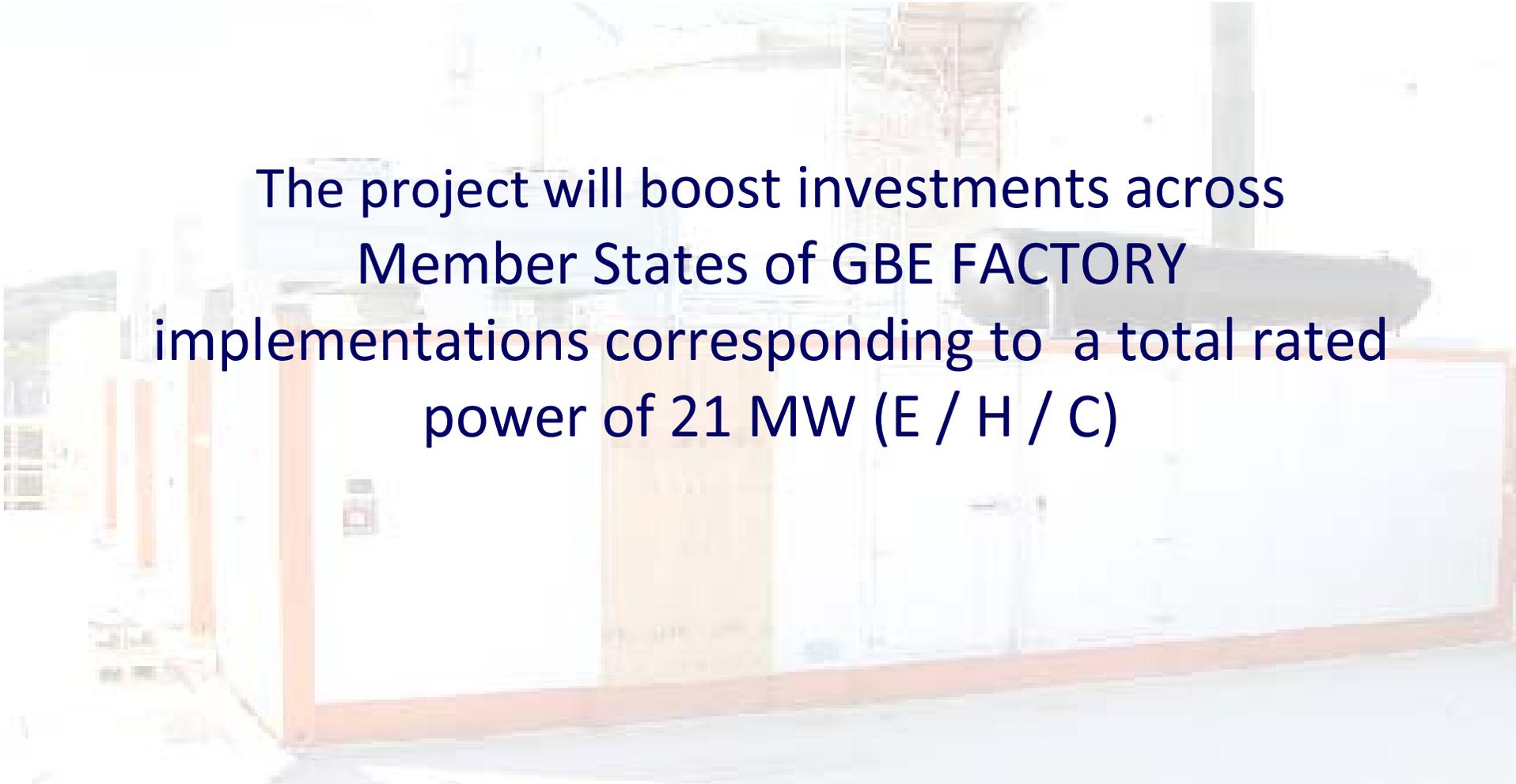
GBE FACTORY will represent the transition from fossil fuel warehouses to second generation industrial or commercial buildings.

# Objectives

- Create knowledge and conditions for diffusing the GBE FACTORY concept and business models in Europe.
- Bridge the gap between the demand and supply of GBE Factory systems.
- Promote the installation of RES plants in industrial and commercial buildings (existing, new or refurbished) and in buildings (existing, new or refurbished) in waste treatment areas, logistic platform areas or primary transformation areas.
- Promote the issue of policy measures and specific tools for GBE FACTORY development.

# Main expected impact

The project will boost investments across Member States of GBE FACTORY implementations corresponding to a total rated power of 21 MW (E / H / C)



# Background

- Implementation of the new RES Directive (improving investments for local RE electricity, heating and cooling and contribution to reduction of greenhouse gas emissions and climate change) and of the EPBD Directive also for commercial and industrial buildings.
- High economic risk for small investors due to the lack of sound business models, ensuring a positive return on investments

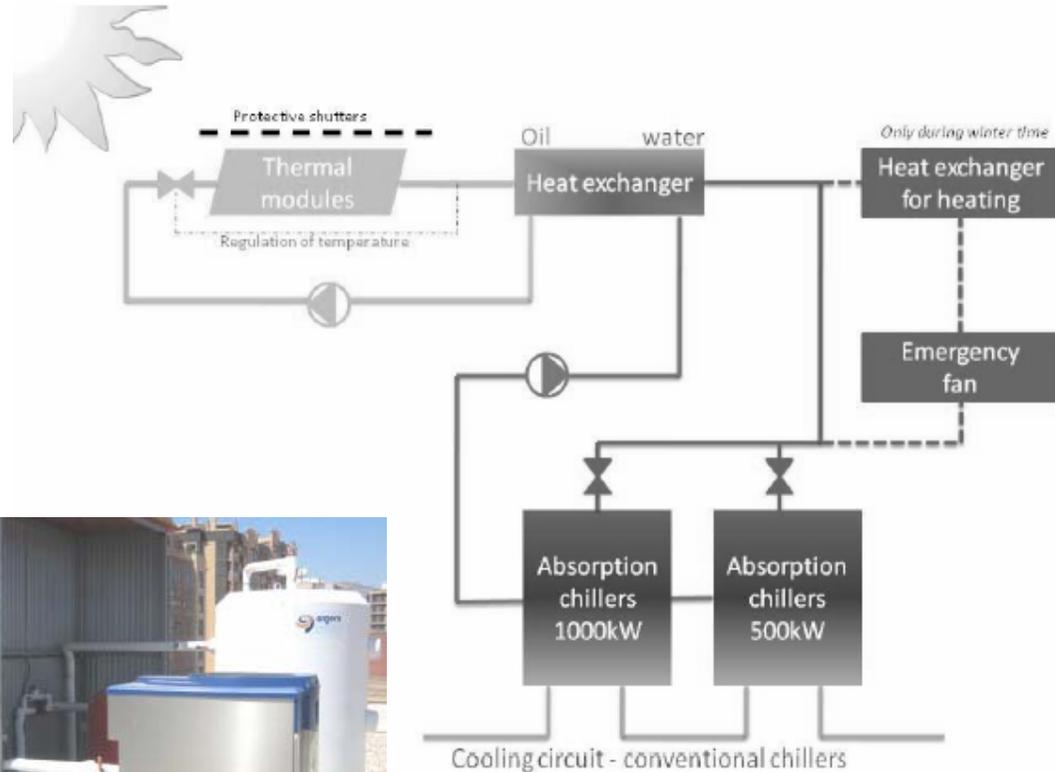
## Example of existing realisations in Europe



Warehouse of a pharmaceutical company in Murcia (Southeast Spain), obliged to maintain the internal temperature below 25 ° C.

# Example of existing realisations in Europe

With a solar air conditioning system of 2.2 MW, the company reduced the energy consumption by 70%



# Main steps of the action

- Drafting sound Business Models and collecting existing practices in EU
- Carrying out market analysis on industry and commerce HCIU sectors
- Selection and promotion of the best GBE FACTORY EPCs in the partner countries, involvement of ESCOs and users/suppliers
- Drafting of market opportunity studies for the realization of DEMO GBE Factories

## ...among the outputs...

- Report on 10 GBE FACTORY exemplary cases
- 5 videos (1 per country) on virtuous SMEs/companies that have adopted the GBE FACTORY approach
- GBE-FACTORY Regional Road maps
- Training of financial and business agents
- Matchmaking event
- “GBE FACTORY concept and Business Model Guide”
- GBE FACTORY Plates awarded to virtuous companies for appointing the plate outside their commercial and industrial buildings

# Best Practice Collection: The case of NUNCAS (Italy)

The Nuncas company manufactures products for home cleaning and care, and has always been very careful on renewable energy source innovation. In 2009 it won the award “Ecotech 2009-11 edition-4TH Category” for the enterprises that are excellent in eco-friendly behaviors.



## The model is called “passive building” and it is equipped with several renewable energy system:

- the photovoltaic plant is composed by **264 modules of about 135 kW** of power and is able to provide energy to the entire building.
- There is a **heating pump**.
- The entire plant is **completely automatic**, and is equipped with a system that is able to check and notice the use of energy sources for the production of electricity, heating and cooling.
- The electric light is regulated by a presence detector as well, and is **take into account the natural lighting**.
- Presence of **adjustable chimneys for lighting** the main rooms.



## Environmental and economic sustainability

- One of the most important result is the CO<sub>2</sub> emission avoid with the use of integrated plant.
- In total amount of CO<sub>2</sub> emission avoided with the plant is around 302t.
- The plant has also obtained in 2009 the certificate of Regione Lombardia of Class A building

**This is one of the first examples of totally sustainable and self-sufficient building realised in Lombardia. The plants have been constructed with the most advanced renewable energy sources technologies and represents a great example of green blue energy factory.**

## The case of Best Western Premier Hotel Victoria (Germany)

The Best Western Premier Hotel Victoria is a 4 stars city hotel with 69 rooms, a breakfast room and two cocktail bars, situated in Freiburg, Germany.

Since 2002 the hotel became a zero-emissions building (based on the CO<sub>2</sub> value), due to the constant and continuous application of modern solar, wind energy and many other environmental friendly technologies.



## Main technologies involved:

- 3 heat insulating panels were built in the windows of the entire building;
- The rear building was completely insulated in 2009 and an impressive primary energy requirement of only 82 kWh/m<sup>2</sup> was reached;
- Intelligent air supply units, through which an inflow of tempered air is possible, were integrated in the face of the building;
- The heat for warm water and heating is up to 100% produced by only renewable energy: a wood-pellet heater combined with a thermal solar collector.
- The thermal-solar energy plant with a collector area of 30 m<sup>2</sup> supports the warm water production.

## Ground water cooling:

a pump furnishes 10 to 13 degrees (Celsius) cold water from a depth of about 16 to 20 meters from the water well located in the hotel courtyard and supplies the heat exchanger system.

The cool water circulates through a pipe system into the room and is being released back to the ground (well) with a maximum temperature of 16 degrees Celsius through an injection pipe, where it drains away and cools down.



# The case of ebm-papst Mulfingen GmbH & Co.

The KG is a producer of fans and motors, blowers, and pumps.

The company addressed different questions concerning renewable energy sources, climate protection and the use of waste-heat.



## Main technologies involved:

- installation of a heat pump with a coefficient of performance (COP) > 4;
- utilization of industrial waste heat of the machinery;
- installation of a 153 kWp-solar power-plant;
- optimization of the heat distribution;
- installation of pumps heating and cooling pumps of the energy-efficiency class A, utilization of energy-saving ventilation systems.



## **GBE-factory Business Guide**

The guide “GBE Business models and best practices in Europe” shows the different business models matching with practical examples.

The guide is available at the following link:

<http://www.gbefactory.eu/gbe-draft-guide/>

# Coordinator & Partners



Unioncamere  
Veneto

- Coordinator:
  - Regional Association of Veneto's Chambers of Commerce (IT)  
Contact person: Erica Holland  
+0039 041 099 9411; [erica.holland@eurosportelloveneto.it](mailto:erica.holland@eurosportelloveneto.it)
- Partners:
  - Forgreen S.p.a. (IT)
  - Clusterland Upper Austria Ltd. (AT)
  - S.O.L.I.D. Company for Installation of Solar and Design (AT)
  - BULGARIAN INDUSTRY ASSOCIATION (BG)
  - Erato Holding (BG)
  - Italian-Slovak Chamber of Commerce (SK)
  - P.S. Elmont (S)
  - NBank (DE)
  - Italian Chamber of Commerce for Germany (DE)