

Newsletter

May 2020

Inside This Issue

- 1 **Message from the President**
- 2 **Project Presentation**
- 2 **Concept**
- 2 **Principle**
- 3 **Operation**
- 3 **Upcoming Initiatives**

Title

*Solar Energy, 24 hours,
even in winter. On or
off-grid. Based on
Hydrogen Technology*

Duration

April 2020 – March 2022

Main objectives

Manufacturing and
Commercialisation of Solenco
Powerbox

Dear Reader

We are pleased to present you the first Solenco Power Newsletter from May 2020.

With the project's Newsletter you receive the latest information about the European Project SOLENCO and its main objective "The Solenco Powerbox", Manufacturing and Commercial roll-out.

Further, we will keep you up to date about the Project Activities and initiatives related to Solenco.

In the first issue of Solenco Power's Newsletter, we are pleased to introduce to you the project itself and present you our actual team, responsible for the execution of the Project.

For more information and news about Solenco, please visit our website:

<http://solencopower.com>

We hope you will enjoy reading this first issue.

Your feedback and comments are always welcome!

Message from the President

On April 1st, 2020 the company started a 24 months program in the framework of European Union's 2020 Research and Innovation Program under grant agreement No 946442.

This financial support will allow Solenco Power to accelerate their ambition of bringing the Solenco Powerbox to the Energy Storage market



“Solenco Power is pioneering with financial support of the European Commission’s EIC-SMEInst project storing renewable energy for weeks and months through hydrogen technology”

Dr. Hugo Vandendorre
Founder & CEO



Solenco Powerbox™

Concept

Solenco Powerbox (SPB™) is an energy storage system and works within the framework of an integrated solution. This solution represents a whole cycle of sustainable energy production, on energy storage and consumption of electricity and heat in residential areas. This solution ensures the energetic autonomy and independence of its consumer in relation to the guarantee of the network, i.e. this is about setting up in practice decentralised energy production.

SPB™ is an energy storage system that uses hydrogen technology. It charges itself with a sustainable source (e.g. photovoltaic solar module) and releases this stored energy back into the form of electrical energy and heat when there is no sun.

As a missing link between residential needs and the available solar energy system, it offers the opportunity to store energy when it is available and use it in case of need.

SPB™ is an all-in-one solution that covers the needs in heating and electricity and does not need the connection to an electric and natural gas grid. Unlike battery systems, it makes it possible to save days or months without loss/degradation because it uses compressed hydrogen as an energy storage form, enabling energy transfer from one-season to another.

The stored energy in the form of hydrogen gas can also be used as fuel with zero CO2 emissions for the hydrogen cars.

SPB™ also integrates and checks information from other household devices over the Internet of Things.

Operation

The solar panels supply the electrical energy. There SPB™ can work with or without connection to the electricity grid. A connection to the natural gas network as other solutions, is also not necessary, as heat can be generated by the stored hydrogen.

During the day, the needs in electricity are covered by the solar panels and only the surplus is sent to SPB™ to be stored in the form of hydrogen.

When the sun does not shine, the electricity and heat are produced by SPB™ from the stored hydrogen with an electrical efficiency of 55% but also with the possibility to recover as heat a major part of the losses. It brings overall efficiency (electricity and heat) to 90-95%.



The Solenco Project is funded by the European Union's Horizon 2020 research and innovation programme under grant agreement N° 946442

Operation cont'd

The operation covers the needs in hot water for heating (preferably floor heating) and sanitation. If heat production exceeds the needs, the heat will be stored in a hot water tank. If the demand for heat exceeds production, more heat is produced thanks to a catalytic burner. The latter is a high efficiency (97%) burner without flame, which uses hydrogen as an energy source.

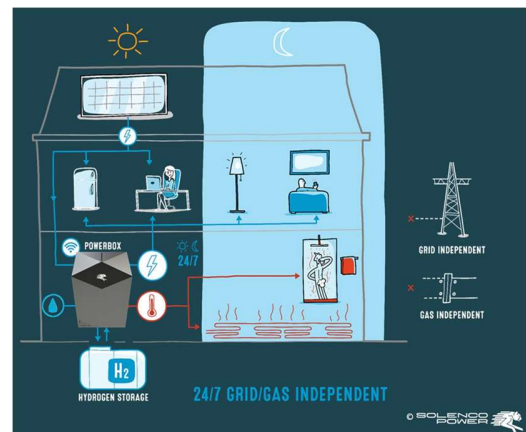
The CO₂ production within the entire system is 0 grams. The product is therefore three times carbon-free: neither production nor distribution nor consumption make greenhouse gases.

This product was recently tested and approved by KIWA in a residential house, located in South Holland, Stad aan 't Haringvliet.

The most important components of SPB™ are the following:

- reversible fuel cell delivers power in kW;
- hydrogen storage tank provides energy in kWh;
- control-unit;
- Cloud interface.

The SPB™ has a 5G/GPRS module that enables custom control and management, and this even remotely



Solenco Powerbox™ concept

Upcoming Initiatives

Focus is for the coming period on obtaining the CE label. Discussions with KIWA (www.kiwa.com) have been started.

You can read a quote from KIWA below:

The industry has to ensure uninterrupted, reliable supply and satisfy demands related to safety and the environment, while taking the interests of many stakeholders into account. Production systems are complex and need to be properly designed, monitored and maintained. Still, retaining profitability is also an objective. Kiwa helps you make the right decisions at the right time. Safety, reliability and the environment are our main focus.

CE



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