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Newsletter

April 2021

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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 sixth Solenco Power Newsletter from April 2021.

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 sixth issue of Solenco Power's Newsletter, we will further elaborate on the working characteristics of a combined PV Solar and Powerbox system.

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

https://www.solencopower.com/

We hope you will enjoy reading this sixth issue.

Your feedback and comments are always welcome!

Message from the President

During this February – March 2021 period, we focussed on maturing the operation of our system, the Solenco Powerbox.

All the data and measurements recorded during the demonstration phase, are now being used to evaluate the operation.

With this information, we provide more resolution to each of the steps in the combined operation of PV Solar and the Powerbox system.

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

"A worldbased on a green and blue energy system, renewable energy and water, may not only be the dream of my grandchildren. It will be my gift for their future an d that of everyone"

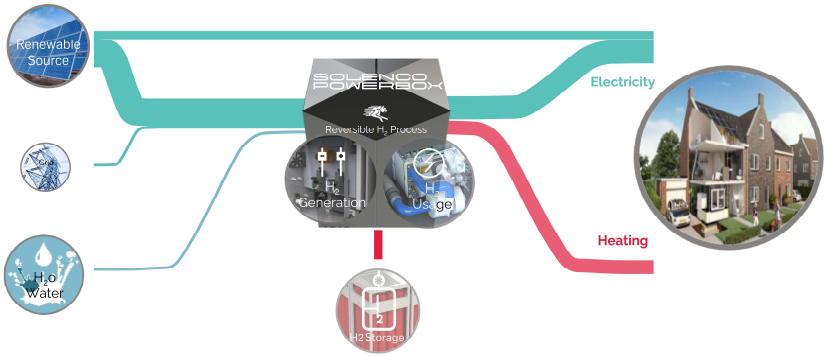
Dr. Hugo Vandenborre
Founder & CEO

Combined operation of PV Solar and Powerbox system

To illustrate the combined operation of PV solar and the Powerbox system, we will introduce a case where both components are integrated. At the same time, they are also connected to the electrical grid.

As already mentioned in our first newsletter, excess electricity generated by PV solar (not directly used by the consumer), can be directed to the Powerbox. The most standard topology of the PV solar installations used with the Powerbox, combine several arrays of solar panel modules coupled with a grid-tie solar inverter. During this process, direct current (DC) is converted into alternating current (AC).

Water is circulated over the PEM electrolysis side while feeding power. Water will split in oxygen gas, release to the atmosphere, and hydrogen that will be stored under pressure. During this process, useful heat is released. The electrolysis process can be initiated within seconds.



At night or when there is a lack of electricity, the stored hydrogen can be transformed by the reversible PEM fuel cell side into electricity and heat. The electricity goes to appliances and the heat is used for low temperature heating systems as well as sanitary water heating.

The combined operation of PV solar and the Powerbox support the share of self-consumption of the installation, decreasing the dependency on the electrical grid as well as the natural gas network.

Upcoming Initiatives

In the next Newsletter further details regarding our simulation tool will be described.

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