



# HYBRIDPLUS NEWSLETTER: JULY 2024 ISSUE

Dear Colleague,

Welcome to the third issue of our newsletter!

Ready to discover or rediscover our project concept video, a publication, tree conference abstracts presented at ENERSTOCK 24, two conference abstracts accepted to SolarPACES 24 and more?

HYBRIDplus is running full swing after 20 months of activities. Designed for the Thermal Energy Storage community and whoever interested in topics related to renewable energy technologies, this newsletter disseminates information highlighting partners' progress, activities and successes.

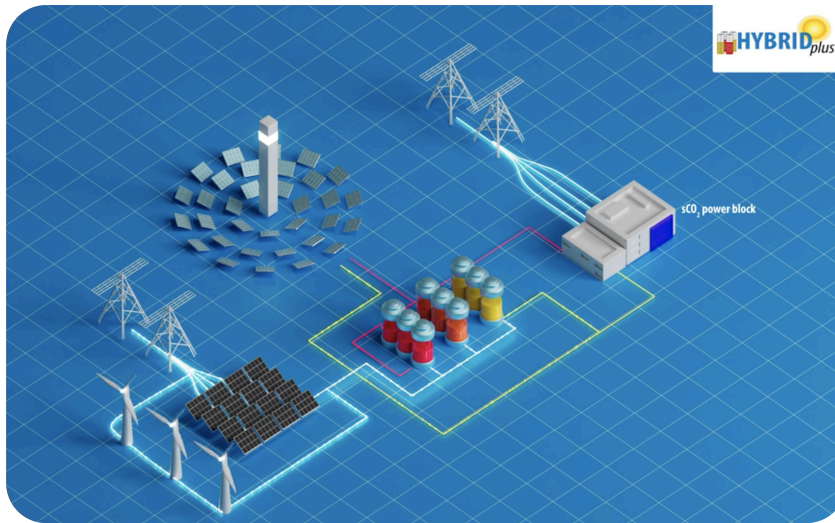
Our ambition is to pioneer the next generation of concentrated solar plant (CSP) with an advanced innovative high-density and high-temperature thermal energy storage (TES) system capable of providing a high degree of dispatchability at low cost and with much lower environmental burden than the state of the art.

Sincerely,





## Project concept video - Released June 2024 - YouTube channel



We are thrilled to unveil our project concept video accessible through our HYBRIDplus Youtube channel.

Click, watch and share it with your network, thank you!

 [Watch the video](#)

The video illustrates HYBRIDplus CSP hybridization innovative concept, mixing PCM (phase changing material) and metal wool in an electrified storage cascade system, and explains why it has the potential to revolutionize renewable power generation and storage.

## PARTNERS ACHIEVEMENT

### SCIENTIFIC PUBLICATION IN MATERIALS



**materials**

[Thermal Energy Storage Using Phase Change Materials in High-Temperature Industrial Applications: Multi-Criteria Selection of the Adequate Material](#)

*Authors: Luisa F. Cabeza, Franklin R. Martínez, Emiliano Borri, Svetlana Ushak and Cristina Prieto.*

The paper presents a new methodology for phase changing material (PCM) selection including one-week metal compatibility (corrosion) test and more!

### DEUTSCHES METALLFASERWERK (STAX) SPEAKING

“ Since 1951, STAX mission is to develop and produce metal fiber products out of various materials such as steel, stainless steel, copper, brass and others. ”



“ For the initial metal wool material evaluation, STAX together with GREiA Research Group from the University of Lleida identified four different types of steel, copper as well as 2 different types of aluminium.

Considering the system requirements in terms of heat and ambient environment, these materials were compared regarding density, thermal conductivity, heat resistance as well as costs. Following the first material evaluation, STAX supplied samples of the most promising materials to the GREiA Research Group in order to test the chemical properties in different PCM. For the testing itself, STAX produced fibers, wool and fleece of the desired materials. The sample production at STAX was used to get indications on the manufacturability of the specific materials. ”

Tim Haas - Engineer

## STAX Team and Production



Steel wool production from STAX's machines.  
The factory is located in Neidenstein, Germany.

## LATEST NEWS





## StoRIES Online Workshop

June 2024

### “Optimising Grid Resilience: Exploring Hybrid Energy Storage and AI Solutions”

Our coordinator, Cristina Prieto, shared her views about the pivotal role of hybrid energy storage systems in grid resilience and reliability enhancement. The webinar is accessible here:

 [Watch the video](#)

 [Consult the presentations](#)




## ENERSTOCK

June 2024


3 conference papers presented!

 Electrified cascade PCM concept for Thermal Energy Storage in a CSP plant.

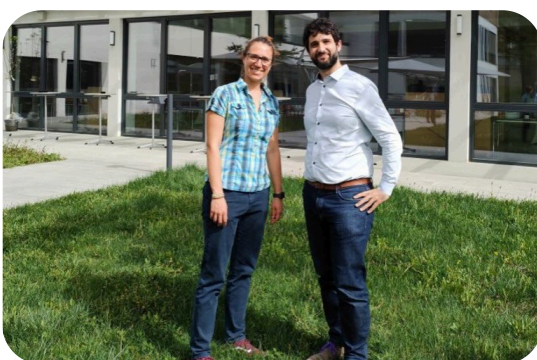
*Authors: Anton Lopez-Roman, M. Carmen Pavón-Moreno, Paolo De Giorgi, Luisa F. Cabeza and Cristina Prieto.*

 Experimental study of heat transfer enhancement in a latent heat thermal energy storage using metal wool.

*Authors: Alessandro Ribezzo, Matteo Morciano, Gabriel Zsembinszki, Sara Risco Amigó, Saranprabhu Mani Kala, Emiliano Borri, Luca Bergamasco, Matteo Fasano, Eliodoro Chiavazzo, Cristina Prieto, Luisa F. Cabeza.*

 Selection of suitable inorganic materials to be applied as PCMs in high temperatures thermal energy storage system.

*Authors: Franklin R. Martinez Alcocer, Emiliano Borri, Svetlana Ushak, Cristina Prieto, Luisa F. Cabeza.*



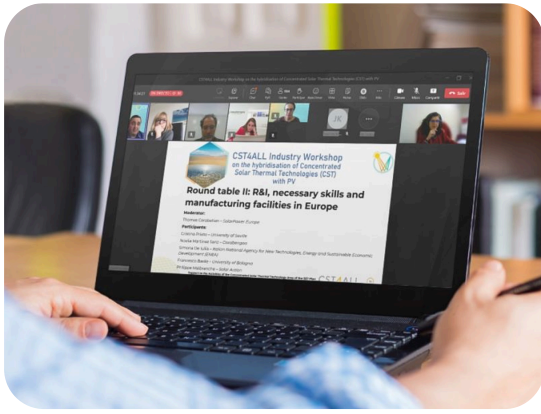
## IEA - Energy Storage Task 44 Kick off meeting - Graz, Austria

April 2024

### “Power-to-Heat and Heat integrated Carnot Batteries for Zero-Carbon (industrial) Heat & Power supply”

[IEA Task 44](#) aims at facilitating the energy transition towards a zero-carbon system by creating a platform for experts from industry and academia to evaluate the role of Power-to-Heat and heat integrated Carnot Batteries, enhance their international visibility, and foster a widespread recognition of their potential in industry and policy. KTH and USE support the growth of this collaborative project, and work alongside fellow professionals in the industry!





## CST4ALL Industry Workshop

February 2024

[CST4ALL](#) is a EU project funding by Horizon Europe. On 22 February, our coordinator [Cristina Prieto Rios](#) was pleased to take part in CST4ALL Industry Workshop on the hybridisation of Concentrated Solar Thermal technologies (CST) with PV, providing our perspective on R&D in hybridisation in CSP.

## PROJECT MEETINGS



4th General Assembly in Nice - March 24



Project Review in Brussels - April 24

## UPCOMING EVENT



October 8-11, 2024  
Rome, Italy

30<sup>th</sup> SolarPACES Conference

2 conference abstracts accepted!

**A Methodology for Desing and Optimization of a PCM Thermal EnergyStorage Cascade for Hybrid PV-CSP Plants with sCO<sub>2</sub> Cycles**

*Authors: Salvatore Guccione, Silvia Trevisan, Emiliano Borri, Anton Lopez-Roman, Cristina Prieto, Luisa F. Cabeza and Rafael Guedez.*

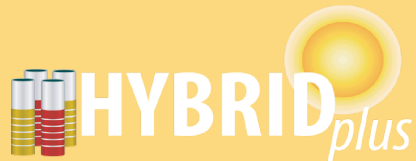
**Hybridization through ohmic heating of a cascade PCM-TES for a CSP plant**

*Authors: Anton Lopez-Roman, Paolo De Giorgi, Luisa F. Cabeza and Cristina Prieto.*

Registration page

Hope to see you there!

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