



HYBUILD project in a nutshell

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HYBUILD

**INNOVATIVE COMPACT HYBRID ELECTRICAL/THERMAL STORAGE SYSTEM
FOR LOW ENERGY BUILDINGS**

9th ECTP Conference

Parallel Session - Embracing B4P Partnership: The transition from
energy efficient buildings to a sustainable built environment

Madrid, Spain



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0 Outline

- 1. HYBUILD in a nutshell**
- 2. Overall concept**
- 3. Implementation**
- 4. Transition from energy efficient buildings to a sustainable built environment**
- 5. Impact: key figures**
- 6. Conclusions**

1 HYBUILD in a nutshell

- Project type: RIA
- Project start: **10/2017**
- Project end: **03/2022**
- Overall EU contribution: **5,995,840 €**
- Consortium: **20 partners, 9 countries**
- Coordinator: COMSA



Kick-off meeting Brussels - 10/2017



www.hybuild.eu



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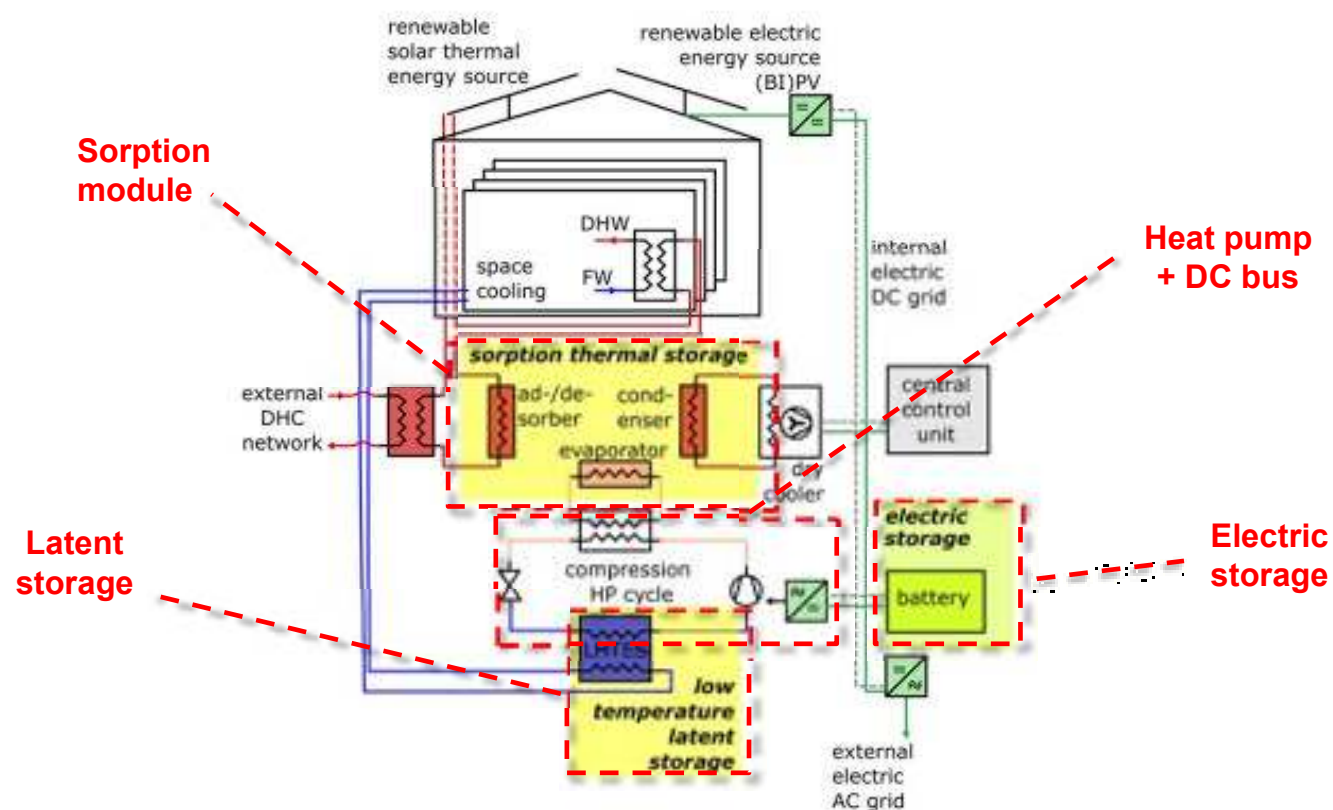
1 HYBUILD in a nutshell

- HYBUILD aims to develop **two innovative hybrid storage concepts**
 1. For **Mediterranean climate** primarily for **cooling energy** supply
 2. For **Continental climate** primarily meant for **heating and DHW** supply
- The concepts are based on innovative components such as:



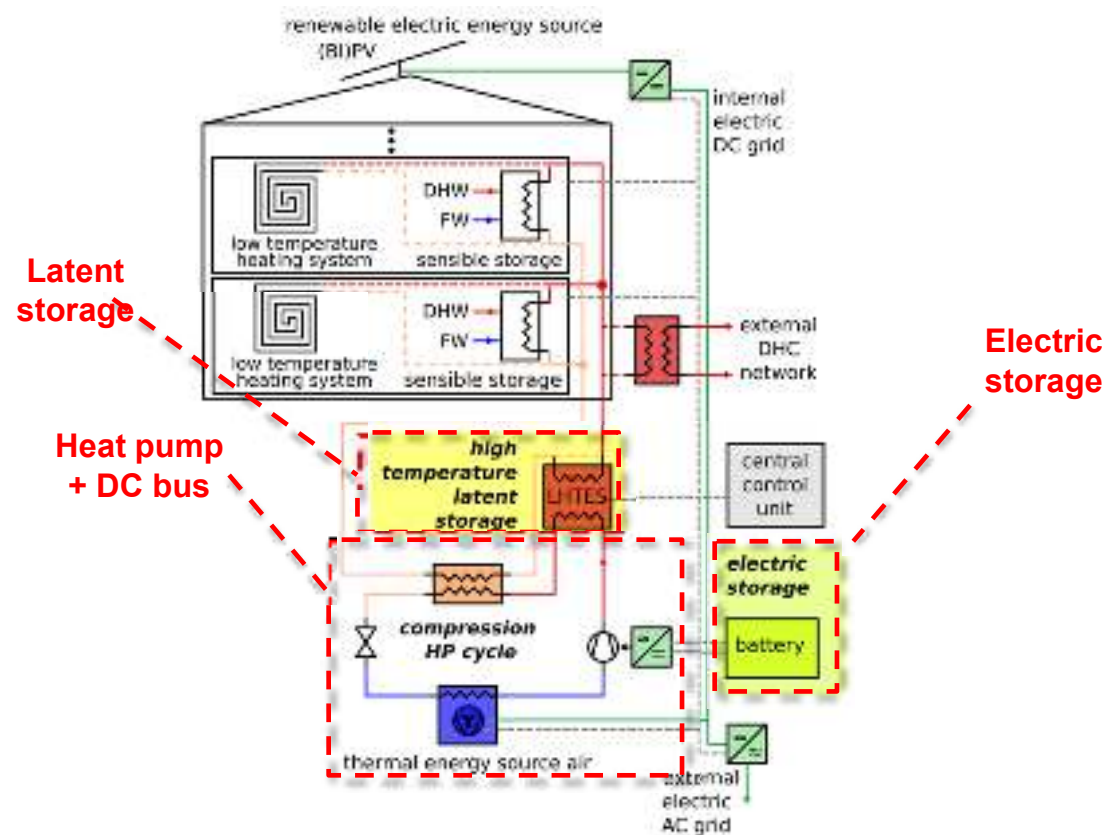
2 Overall concept

Mediterranean system (main focus on cooling)



2 Overall concept

Continental system (main focus on heating & DHW)

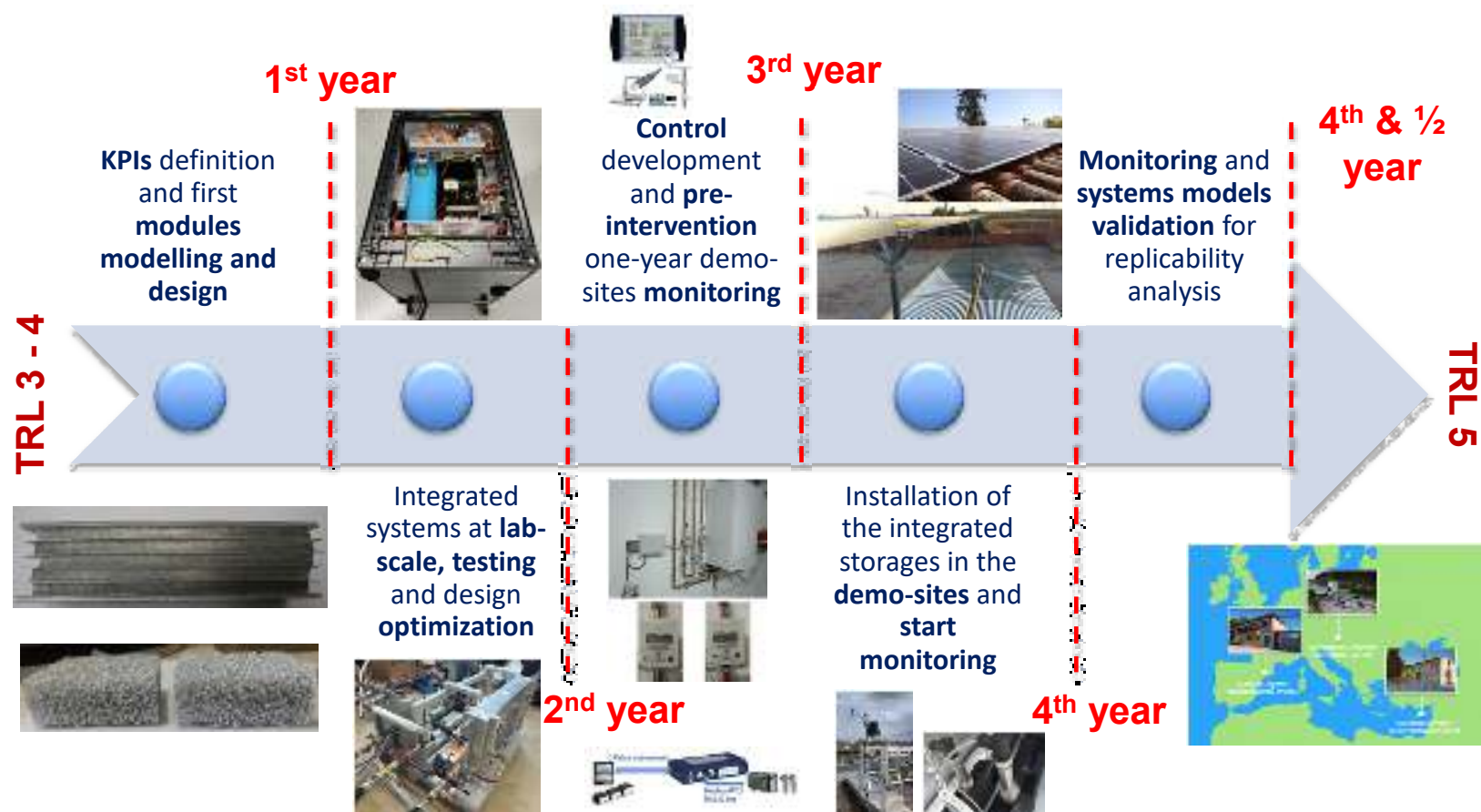


2 Overall concept

- The systems will be properly managed by **advanced control** and **Building Energy Management Systems (BEMS)**
- The systems are **tested** in **three different demo-sites**

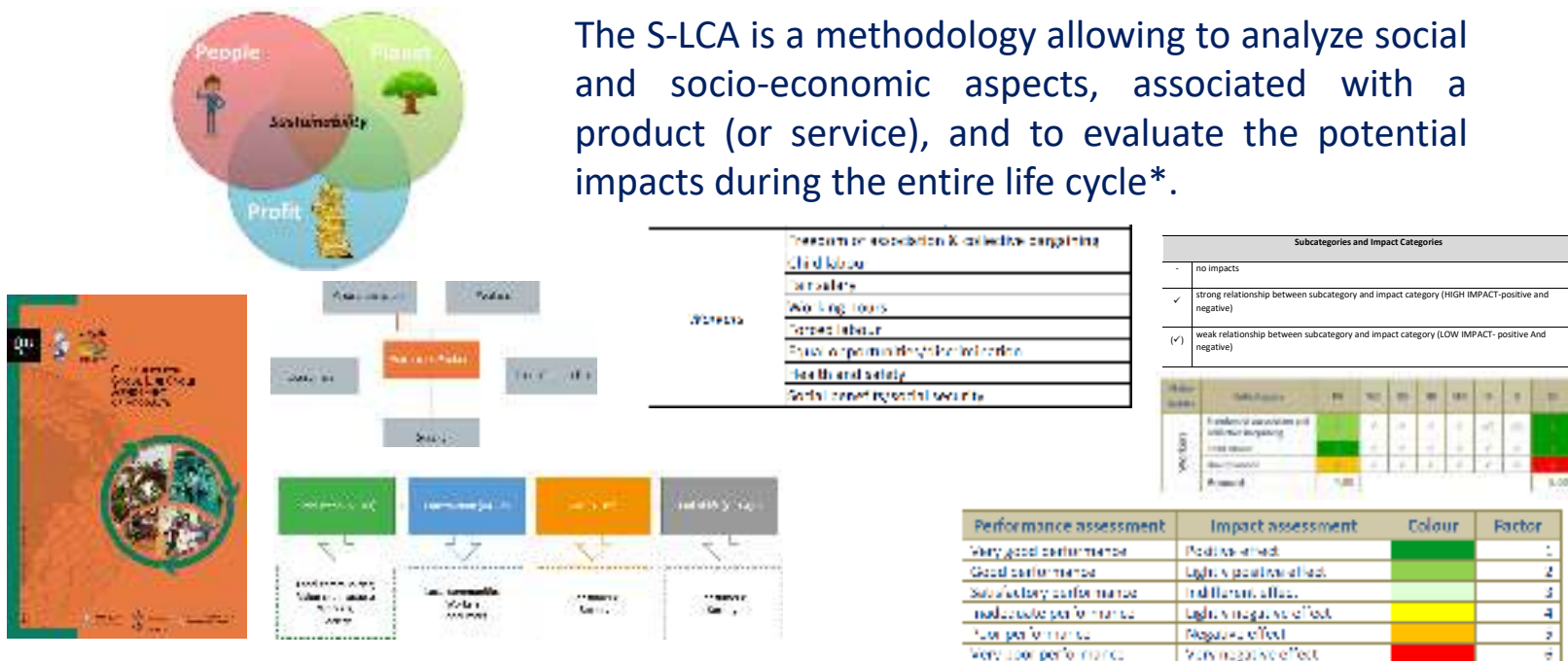


3 Implementation



4 Transition from energy efficient buildings to a sustainable built environment

The systems have been analyzed through an holistic approach including environmental and economic evaluation but also a specific Social Life-Cycle Assessment



*UNEP/SETAC guidelines: "Guidelines for Social Life Cycle Assessment of products", 2009

4**Transition from energy efficient buildings to a sustainable built environment**

Regulatory and regulation issues have been taken into account

Standardization activities will be key for the future exploitation of the technologies developed in the project.

Technical Committees, related with the technologies developed in the project, have been identified and existing standards have been analyzed.

Specific standardization proposals will be prepared for selected components

5 Impact: key figures

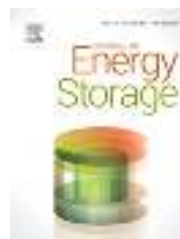
HYBUILD is a relatively **low-TRL** EeB project

Start TRL⁴  End TRL⁶

Key **scientific impacts**:

19 papers submitted
in high impact-factor journals

(**18** already published)



Find them here: <http://www.hybuild.eu/publications/scientific-articles>

And on OpenAire



5 Impact: key figures

Key scientific impacts:

14 conference papers published

Grown a strong **community of EU sister-projects** around RHC for buildings:
Joint publications, collaboration on horizontal topics, etc.



2020 – 15 projects



2021 – 21 projects

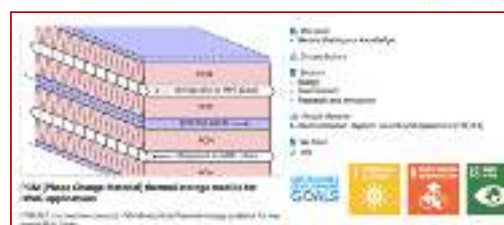
5 Impact: key figures

Key **exploitation** impacts:

2 patents | related to PCM-heat exchangers

9 KERs (Key Exploitable Results)

3 of them uploaded on the Horizon Results platform



5 Impact: key figures

Key exploitation impacts:

HYBUILD overall system (Med & Cont)

further research required – opportunities through Horizon Europe and National R&D programmes : already 1 R&D project funded by Austria FFG with several HYBUILD partners engaged to continue part of the developments)



HYBUILD sub-systems / individual components

1 KER shall be ready for commercialization at the end of the project.
For 2 other KERs, TRL9 foreseen by 2-3 years.

6 Conclusions

- HYBUILD project develops innovative fully-integrated components for hybrid electric/thermal storage solutions at domestic level
- The developed solutions were optimized for both heating and cooling applications. Three demo sites have been used to validate the solutions
- The full-scale systems were successfully tested under lab-controlled conditions but the partnership agrees that further research is needed for full market exploitation of the entire systems
- Market exploitation of the entire system requires specific Business models to be developed among the entire partnership, single exploitable results are already mature for market exploitation



THANK YOU



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