



Project Title:

Innovative compact HYbrid electrical/thermal storage systems for low energy BUILDings

Project Acronym:

HYBUILD

Grant Agreement N°: 768824

Collaborative Project

Deliverable Report

Deliverable number:

D8.5

Deliverable title:

Report on Communication Activities

Related task:	8.4
Lead beneficiary:	R2M
Authors and institutions:	R2M – Régis Decorme, Cécile Barrere
Due date:	M54 – 31 March 2022

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This is part of the project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 768824. The content of this document reflects only the author's view and the Commission is not responsible for any use that may be made of the information it contains.

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Publishable executive summary

HYBUILD communication activities contributed to demonstrate that hybrid energy storage solutions are a key component in providing flexibility and supporting renewable energy integration in the energy system and can efficiently contribute to the decarbonisation of buildings.

During the 54 months of the project, HYBUILD project partners contributed to **9 science festivals and events with posters**, contributed to **11 exhibitions**, and explained the project through **oral presentations in 21 events**. These numbers exceed the communication targets established in the initial communication plan, which demonstrates a very high commitment of the project partners to communicate the outcomes of the project.

As part of communication activities, the [HYBUILD website](#) and [Twitter feed](#) were fed with articles and posts to promote and explain progress of the research work. A dedicated [HYBUILD Flipboard](#) was fed with relevant articles by project partners and served as a market watch tool. Eventually, HYBUILD research progress was also reported through articles on relevant web portals and magazines.

1 Introduction

Aims and objectives

This deliverable presents a summary of **communication activities** conducted along the 54 months of the HYBUILD project. It highlights the participation to science festivals and events with **Posters**, in **Exhibitions**, as well as **oral presentations delivered in Conferences** by HYBUILD partners during the project. For most of these communication actions, an event report was completed by its corresponding lead partner, and its content was translated by R2M into an article published on the [News page of the HYBUILD project website](#), then further promoted on social media. Corresponding links to these articles are included in the summary tables which are presented in the next chapters.

Relations to other activities in the project

The overall Communication plan was presented in [D8.4 – Communication Plan](#). Communication activities presented in this report have been implemented according to this plan. Targets established in the initial plan have been met or exceeded. A complementary deliverable – D7.2 - presents Dissemination activities: it includes a summary of **journal papers, conference papers and workshops**.

Report structure

Chapter 2 presents a summary of contributions to science festivals and events with posters. Chapter 3 presents a summary of participation to Exhibitions. Chapter 4 presents a summary of oral presentations in conferences. Chapter 5 gives a short overview and links to the HYBUILD communication tools used during the project. The appendix includes event reports for selected events presented in the previous chapters.

Contributions of partners

R2M as WP8 leader is the main editor of this report: R2M ensured the overall planning, support and follow-up of communication activities, also making sure that the validation process prior to each communication action was respected. All partners contributed to communication activities, completed event reports and/or provided content to R2M for post-event promotion on the HYBUILD website, Twitter, and to feed the HYBUILD flipboard.

2 Poster in science festivals and events

A total of 9 participations with Posters in science festivals and events were achieved as illustrated in Table 1. Posters were displayed in dedicated corners and often accompanied with oral presentations of the project in ad-hoc sessions. These events were often the opportunity to reach a wider audience including citizens and students.

Table 1. Summary of participation to science festivals and events with posters

#	Partner(s) involved	Date	Event	Links for further info
1	AKG	19 August 2018 (M11)	Summer festival celebrating the 99th birthday of AKG, Hofgeismar, Germany (test for 100 th anniversary) by presenting the activities of AKG to	See event report in appendix

			its active and retired employees as well as their families and friends. Andreas Strehlow presented the HYBUILD project with a poster and explanations, plant tour was given to interested guests. HYBUILD was one station in the AKG showroom.	
2	ALM, UDL	28 September 2018 (M12)	<p>Researchers' Night Almatret 2018 (Nit Europea de la Recerca 2018) - "Behind Innova Microsolar and HYBUILD European projects"</p> <p>This event was intended for local neighbours to know about and understand the European projects located in their town and furthermore to learn about the methods and scientific research behind each project.</p>	See event report in appendix
3	UDL, ALM	28-29 September 2018 (M12)	<p>Researchers' Night Lleida 2018</p> <p>HYBUILD poster was exposed to the participants attending the events organised on 21 September and also on 28 September. Representatives from UDL were in charge of explaining to the general public any questions related to the aim of HYBUILD and its environmental and societal benefits.</p>	See event report in appendix
4	UDL	12-14 March 2019 (M18)	<p>13th International Renewable Energy Storage Conference (IRES 2019) - Düsseldorf, Germany</p> <p>Participation with a poster and an abstract "Examples of EU projects aimed at reducing energy consumption in building and industrial applications" - Gabriel Zsembinski, Alvaro de Gracia, Angel G. Fernández, Luisa F. Cabeza</p>	See event report in appendix
5	NTUA	27 September 2019 (M24)	<p>Researchers' Night 2019 in Athens</p> <p>HYBUILD project was presented during the NTUA (National Technical University of Athens) participation in the annually organized pan-European science and research fair "Researchers' Night 2019". During this evening, several scientific research projects were presented to the wider public.</p> <p>The event was attended by members of the academic community from all over the world, while also including school visits.</p> <p>The event was advertised in the media, attracting a large number of citizens, mainly families with young children, eager to become familiar with the latest achievements in European technology and research.</p>	Article on HYBUILD website
6	UDL, ALM	28 September 2019 (M24)	<p>Researchers' Night 2019 in Lleida</p> <p>European Researchers' Nights are public events dedicated to bringing researchers closer to the public. They showcase the diversity of research and highlight the impact of research on our daily lives. The aim is also to motivate young people to embark</p>	Article on HYBUILD website

			<p>on research careers. The events promote how researchers contribute to our society by displaying their work in an interactive and engaging forum.</p> <p>HYBUILD was present at the 2019 Researchers' Night at the University of Lleida which welcomed more than 400 visitors. A roll-up describing the HYBUILD project was placed at the Europe's Corner of the event dedicated to the EU projects in which UDL is involved. Participants had the opportunity to get in touch with European research and know more about the new technologies and the current challenges that the actual research is dealing with in different areas. HYBUILD approach to tackle these challenges was explained to those participants who showed interest on the topic.</p>	
7	NTUA	November 2020 (M38)	<p>Researchers' Night 2020 in Athens</p> <p>The National Technical University of Athens (NTUA) presented HYBUILD during the European Researchers' Night in Athens. NTUA's presentation was focused on decentralized thermal systems for the production of electricity, heat, and/or cooling, from renewable energy sources and waste heat from various processes.</p>	Article on HYBUILD website
8	UDL	27 November 2020 (M38)	<p>Researchers' Night 2020 in Lleida</p> <p>Within the events celebrated this year (under the EU funded project EuNightCat20 – GA 954506), specific HYBUILD content such as posters were developed for this participation, with the aim to make HYBUILD research and results accessible for a wide audience.</p>	Article on HYBUILD website
9	UDL, ALM	24-25 September 2021 (M48)	<p>Nit Europea de la Recerca 2021 (European Researchers' Night 2021)</p> <p>A poster and a short video describing HYBUILD was placed in the "Europe's Corner" tab on the webpage of the event, as well as two posters acknowledging HYBUILD in the "La nostra recerca" ("Our research") tab. Moreover, a roll-up about the project was located at the "Europe's corner" physical space at the University of Lleida, dedicated to the EU projects in which the University of Lleida is involved.</p> <p>Additionally, an event was organised by UDL on 25 September in Almatret, with the support of the Almatret municipality, where Gabriel Zsembinski explained the facilities that the University of Lleida has installed in Almatret, one of them being the HYBUILD demo.</p> <p>The participants had the opportunity to get in touch with European research and know more about the new technologies and the current challenges that the actual research is dealing with</p>	Article on HYBUILD website

			in different subjects. To enhance the engagement with the visitors of the webpage and the on-site participants, the posters, videos, and face-to-face explanations were done in Catalan or Spanish.	
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3 Exhibitions

A total of 11 participations in exhibitions was achieved by project partners as illustrated in Table 2. These participations were the opportunity to distribute HYBUILD communication material such as HYBUILD postcards through exhibition booths to raise awareness about the project.

Table 2. Summary of exhibitions

#	Partner(s) involved	Date	Event	Links for further info
1	STRESS	5-7 April 2018 (M7)	EnergyMED 2018, Naples, Italy Conference Exhibition on Renewable Sources and Energy Efficiency in the Mediterranean. HYBUILD poster was exposed at STRESS booth in the event.	See event report in appendix
2	AIT, NTUA, AKG	16-18 October 2018	CHILLVENTA 2018, Nuremberg, Germany Chillventa is one of the most important events in the world for refrigeration, air conditioning, ventilation and heat pumps. Dr. Andreas Strehlow from AKG and Sotirios Karellas from National Technical University of Athens were representing HYBUILD at Chillventa 2018, the largest exhibition for energy efficiency, heat pumps, and refrigeration. Our project was also exhibited at the AIT – Austrian Institute of Technology – booth.	Article on HYBUILD website
3	R2M, STRESS	13-14 November 2018	ECTP Conference 2018, Brussels R2M and STRESS distributed HYBUILD postcards and leaflets at the exhibition area of the 2018 conference of the European Construction Technology Platform, to raise awareness about the project and to network with sister R&D projects also funded under the EeB partnership.	See event report in appendix
4	STRESS	13-14 December 2018 (M15)	SMAU Roadshow 2018, Naples, Italy STRESS was hosted in the Regione Campania stand, presented the HYBUILD poster and distributed postcards.	See event report in appendix
5	R2M	12-15 March 2019 (M18)	MIPIM World 2019, Cannes, France HYBUILD was presented within the R2M Solution booth at MIPIM World, the world biggest real estate fair with over 26,000 participants. This was the opportunity for participants to grab an HYBUILD project postcard & to discover the future of hybrid	Article on the HYBUILD website

			energy storage solutions for tomorrow's residential buildings.	
6	OCHSNER	29 March 2019 (M18)	<p>OCHSNER partner conference in Linz</p> <p>The congress day (2nd International Ochsner Partner-Congress 2019) in the densely staffed Oberbank Forum was filled with an intensive work programme. HYBUILD was highlighted to over 500 participants from Europe and China.</p>	See event report in appendix
7	STRESS	6-7 June 2019 (M21)	<p>SMAU Roadshow 2019, Bologna, Italy</p> <p>National roadshow of events on innovation, technology, and ICT. HYBUILD poster was exposed at STRESS booth in the event and HYBUILD postcards were distributed.</p>	See event report in appendix
8	NTUA, DAIKIN	9-11 Sept 2019 (M21)	<p>5th International Seminar on ORC Power Systems, Athens, Greece</p> <p>The event was the international conference regarding ORC technology. The conference was attended by members of the ORC scientific community from all over the world, including distinguished researchers from leading research institutes, as well as young researchers taking their first steps in the field. HYBUILD was presented as part of the European corner.</p>	Article on the HYBUILD website
9	STRESS	24-26 October 2019 (M22)	<p>SAIE, Bari, Italy</p> <p>Technologies towards Building and Built Environment 4.0. STRESS had an exhibition desk at the event allowing to distribute HYBUILD material.</p>	See event report in appendix
10	R2M	8 July 2021 (M46)	<p>1ères Assises Azuréennes de la Transition Energétique organised by Chamber of Commerce of Nice, France</p> <p>This new event organised by the 'Energy cluster' of the French Riviera Chamber of Commerce was aiming at stimulating networking and business opportunities between local industrial stakeholders and public authorities committed to the development of innovations to tackle energy transition challenges.</p> <p>R2M contributed to the event by exhibiting cutting-edge innovations from its portfolio of EU R&I projects including HYBUILD. The R2M French team also participated to one-to-one business meetings to further present these innovations with interested local stakeholders and discuss potential future partnerships.</p>	Article on the HYBUILD website
11	R2M	15-18 March 2022 (M54)	<p>MIPIM World 2022, Cannes, France</p> <p>MIPIM is the World leading real-estate market event which brings the entire value chain</p>	Article on the HYBUILD website

			<p>together. It gathered more than 20.000 stakeholders.</p> <p>HYBUILD was promoted through the event #Proptech area which is designed to promote disruptive innovations for the built environment, and to contribute to bridge the gap between #research and #market. It was promoted both through the R2M Solution company booth, and also through the booth organised by the SmartBuilt4EU project which promoted its Smart Buildings Future Technologies brochure in which the HYBUILD Smart BEMS component is featured.</p>	
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4 Oral presentations in conferences

A total of **21 oral presentations** were achieved by HYBUILD partners in numerous conferences, as summarized in Table 3. Event reports were completed by project partners and/or articles were published on the HYBUILD website for pre- and post-promotion.

Table 3. Summary of oral presentations in conferences

#	Partner(s) involved	Date	Event	Links for further info
1	AGL	5 October 2017 (M1)	<p>Project presentation at the AGLANTZIA Municipal Council meeting</p> <p>Overall presentation of the project in Greek.</p>	N.A.
2	R2M	22-23 February 2018 (M5)	<p>SHAPE ENERGY Sandpits, Torino, Italy</p> <p>R2M represented HYBUILD participated in the third track entitled “Energy system optimisation and smart technologies”. The HYBUILD poster was displayed in the exhibition area of the event.</p>	See event report in appendix
3	UDL	9-11 April 2018 (M7)	<p>IEA ECES / SHC - Annex 33 / Task 58, Ljubljana, Slovenia</p> <p>The main goal of the ECES Annex 33 is to bring together people who are interested in improving and innovating PCM and TCM thermal energy storage materials enhancement. Presentation of the two innovative hybrid energy storage concepts was done.</p>	See event report in appendix
4	ENG	12-15 June 2018 (M9)	<p>18th International Conference on Environment and Electrical Engineering, Palermo, Italy</p> <p>Overall presentation of the project with a specific focus on the relevance of smart energy control in the building domain.</p>	See event report in appendix
5	FRESNEX, UDL	21 June 2018 (M9)	<p>CIES 2018 - XVI Congreso Ibérico y XII Congreso Iberoamericano de Energía Solar, Madrid, Spain</p>	See event report in appendix

			Presentation of FRESNEX technology (CSH – Concentrating Solar Heat) and its application within the HYBUILD project.	
6	CNR ITAE, AIT, UDL, NTUA	9-13 September 2018 (M12)	EuroSun2018 Conference, Rapperswil, Switzerland Presentation of HYBUILD Mediterranean and Continental systems (linked with a conference paper).	Article on HYBUILD website
7	COMSA	4 October 2018 (M13)	EFINTEC 2018, Barcelona, Spain COMSA presented HYBUILD at this event directed at installation companies, distributors and maintenance professionals in the electric, thermal equipment, home renovation and renewable energy sectors.	See event report in appendix
8	AIT	13-14 November 2018 (M14)	IEA HPT Annex 50: Heat Pumps in Multi-Family Buildings for Space Heating and DHW, Utrecht, NL Short presentation prepared by AIT which acted as a “teaser” for future results. Presentation by Johann’s colleague Andreas Zottl who represents AIT in the Annex 50.	N.A.
9	CNR ITAE	19 November 2018 (M14)	Mission Innovation Challenge #7 (Affordable Heating and Cooling), Roma, Italy Overall presentation of the HYBUILD project.	N.A.
10	CSEM	16 May 2019 (M20)	Smart Solar Power in Europe, Munich, Germany Information exchange and brokerage event.	N.A.
11	UDL	12-14 June 2019 (M21)	11-CNIT - XI National and II International Engineering Thermodynamics Congress, Albacete, Spain Oral presentation of the study on PCM selection for the two HYBUILD latent heat storage systems.	Article on HYBUILD website
12	UDL	26-28 June 2019 (M21)	II Symposium of the Ibero-American Research, Development and Transfer Network for the Application of Renewable Energies (RibERA), Cayos de Villa Clara, Cuba Overall presentation of the HYBUILD project.	Link to the abstract
13	AKG	22 August 2019 (M23)	Colloquium on Latent Storage, Stiebel Eltron, Holzminden, Germany Final presentation of a project investigating the application of phase change slurries (PCS = PCM emulsified in water) in combination with a heat pump and PV to optimise the load management. Many similarities to HYBUILD project but smaller. HYBUILD postcards distribution.	See event report in appendix

14	CSEM	9-13 September 2019 (M24)	EU PVSEC, Marseille, France The Innovation Platform for the Global PV Solar Sector. Overall presentation of the HYBUILD project.	See event report in appendix
15	R2M	15 October 2019 (M25)	Innovative City 2019, Nice, France Regis Decorme from R2M Solution attended and disseminated HYBUILD at Innovative City 2019 Innovation for Better life and Smart Business. This new edition of Innovative City had a specific track focused on Smart Grids, which highlighted local demonstration projects such as FLEXGRID, as well as other local initiatives being led by the Smart Grids cluster of the French Riviera Chamber of Commerce. HYBUILD energy storage solutions can play a significant role in terms of flexibility for the next-generation energy networks.	Article on HYBUILD website
16	COMSA	19 December 2019 (M27)	Webinar: “An innovative approach to Thermal Energy Storage and Self-Sufficiency in Buildings” Organised by CHES-SETUP project consortium. HYBUILD invited as guest speaker.	Article on the HYBUILD website
17	R2M	5 May 2020 (M31)	HYBUILD in a webinar on European funding for research and innovation On Tuesday, 5 May 2020, HYBUILD was presented within a session focused on how to get involved in Horizon 2020 European collaborative research and innovation projects. The presentation detailed available funding and their mechanisms. This was the opportunity to introduce the HYBUILD project as a case study.	Article on the HYBUILD website
18	AIT	25 June 2020 (M32)	General meeting of the joined IEA HPT Annex 55 and ECES Annex 34 “Comfort Climate Box” (online) Johann Emhofer presented recent results from the work at AIT with the Continental system in HYBUILD.	N.A.
19	AIT	26 November 2020 (M37)	ENOVA-conference - national workshop (Online) The aim of the workshop was to identify and rank market barriers for “comfort climate boxes” (integrated heat pump solutions) with national stakeholders. This work is part of the IEA HPT Annex 55, where HYBUILD was already presented back in June this year. The HYBUILD Continental system was presented as part of the contribution to this event.	Article on the HYBUILD website
20	NBK	23 November 2021 (M45)	R-EVOLUTION event, Anglet, France After two editions to discuss the design-construction links in 2018 and the Low-tech / High-tech opposition in 2019, R-EVOLUTION returned in	Article on the HYBUILD website

			2021 with a new scale: zoom on energy systems, artificial intelligence, and high-performance envelopes, these shadow heroes, who are now preparing their R-EVOLUTION of the invisible. HYBUILD was presented as part of the sessions.	
21	STRESS, R2M	2-3 December 2021 (M46)	<p>ECTP 2021 Conference, Madrid, Spain</p> <p>The conference was organised by MWCC and PTEC on Thursday & Friday 2-3 December 2021 as a hybrid event, both with attendees onsite at the Palacio de Cibeles in Madrid, and with an online broadcast.</p> <p>HYBUILD was presented in the “Embracing Built4People partnership” session of the conference, as part of a series of inspirational talks of projects funded by the Energy efficient Buildings contractual Public and Private Partnership (EeB cPPP).</p>	Article on the HYBUILD website

5 HYBUILD communication tools

5.1 Project website

The [HYBUILD website](#) (Figure 1) was designed and maintained by R2M. It gathered over **26.000 all-time views** during the project. More than **120 articles** were published on the ‘News’ page of the website to update visitors on the progress of the research.

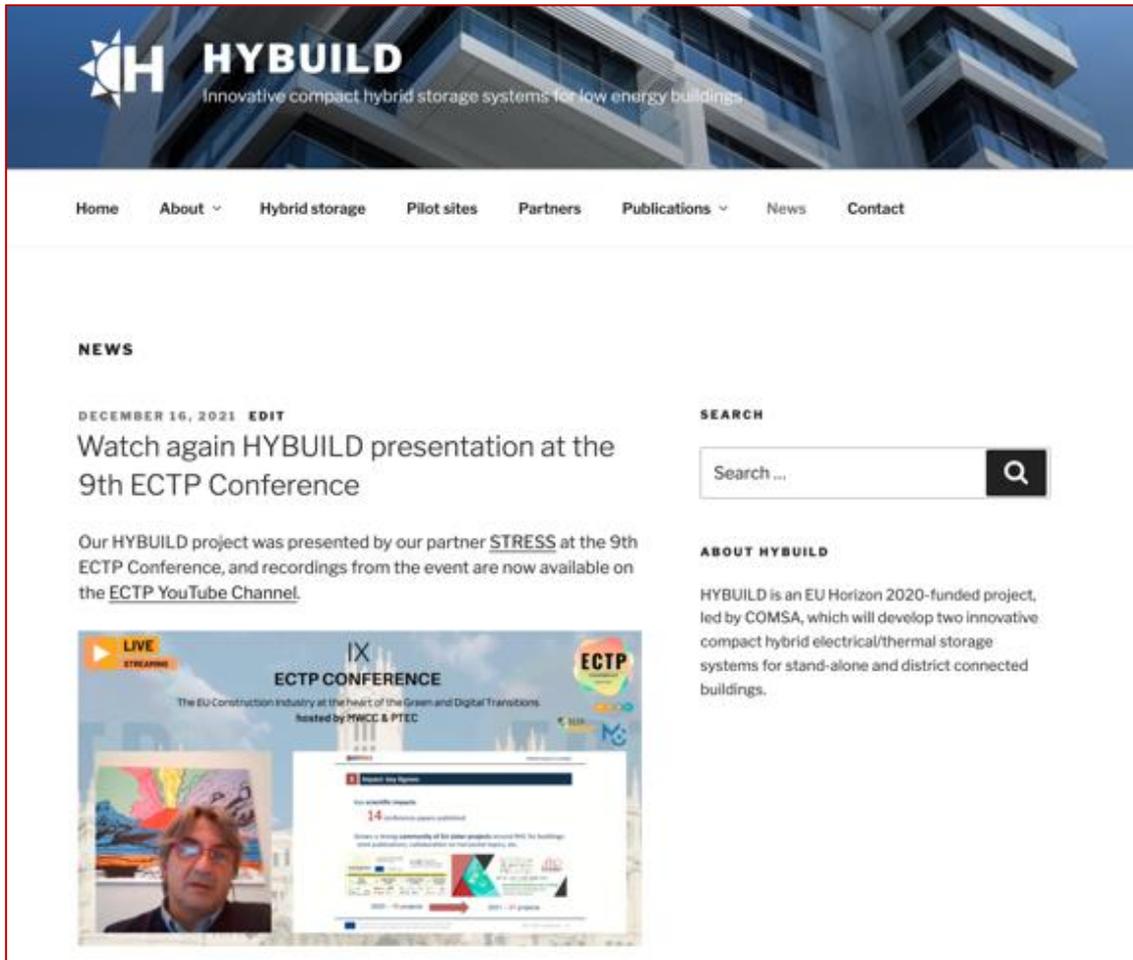


Figure 1. HYBUILD website

5.2 Twitter

The dedicated [HYBUILD Twitter feed](#) (Figure 2) was moderated and fed by R2M with inputs from all project partners to update on the progress of the research carried out within HYBUILD. The account gathers **over 300 followers** at the end of the project. More than **270 Tweets** were posted during the project.



Figure 2. HYBUILD Twitter feed

5.3 Flipboard

The [HYBUILD Flipboard](#) (Figure 3) served as a tool to conduct market watch and keep up-to-date with ongoing related research activities connected to HYBUILD. All partners contributed to post relevant articles on this online magazine which also contributed in the meantime to raise awareness about our project.

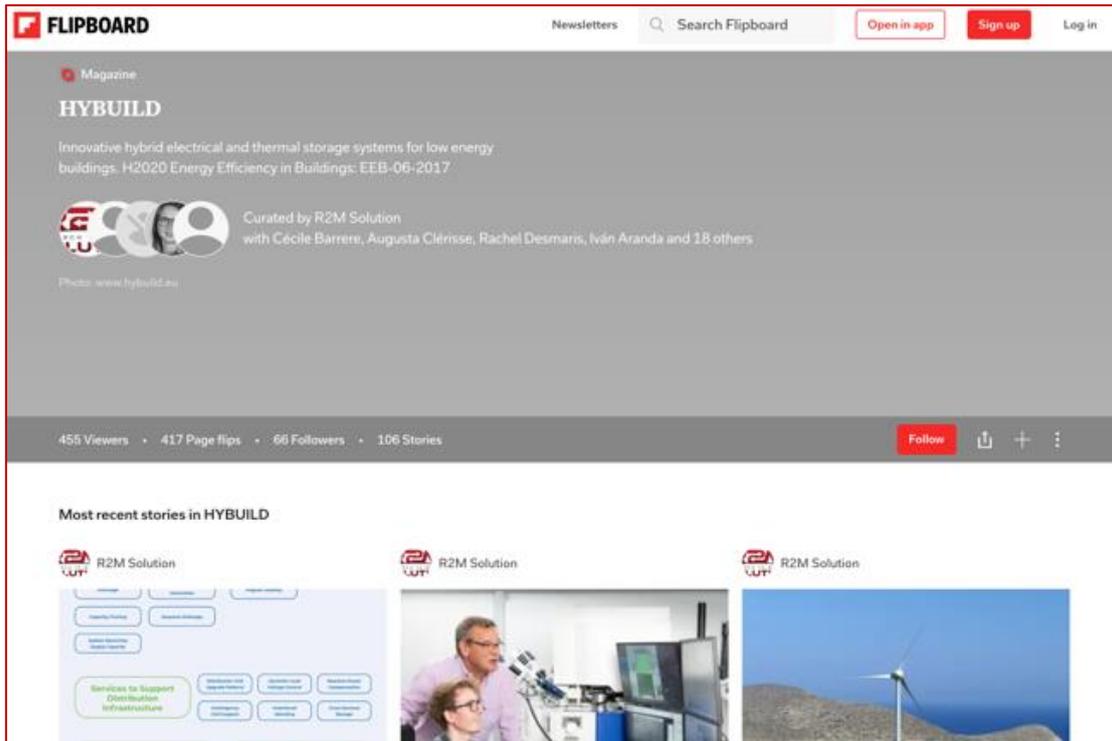


Figure 3. HYBUILD Flipboard

5.4 Articles

HYBUILD was further promoted through various articles on relevant web portals as well as brochures. Two examples are provided below in Figure 4: a first example published in Construction 21 web portal (led by NBK); a second example of a page to present the HYBUILD control system (Smart BEMS) in a brochure of the SmartBuilt4EU project (led by R2M and ENG).



[Dossier énergies renouvelables] #19 - Les solutions hybrides thermiques- électriques : la bonne combinaison en termes d'énergie pour les bâtiments ?

par Aurélien HENON / © 2021-06-10 14:02:45 / France / 238



HYBUILD control system (Smart BEMS) highlighted in a SmartBuilt4EU brochure

The Smart Building Energy Management System of the HYBUILD solution, developed by our partner Engineering, is featured in the latest brochure edited by the SmartBuilt4EU project.



Figure 4. Articles on web portals and magazines to promote HYBUILD research results

Appendix: Event reports

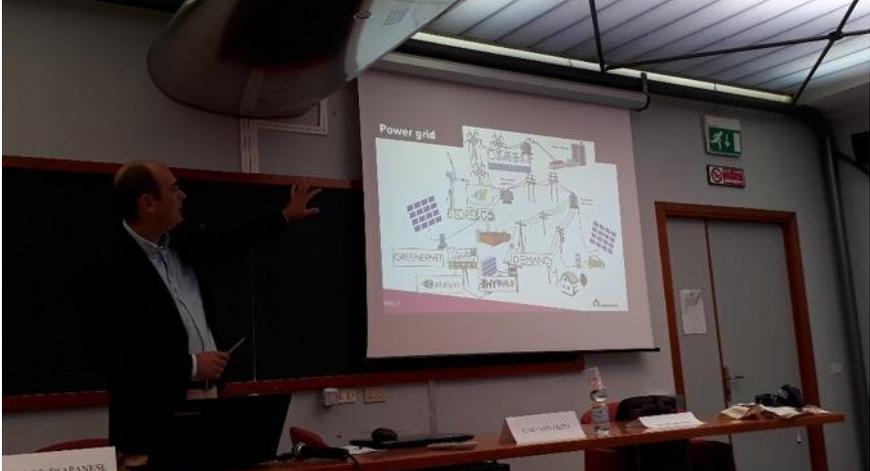
Date	19 August 2018
Event name	Summer Festival of AKG
Event description	Summer festival celebrating the 99 th birthday of AKG (test for 100 th anniversary) by presenting the activities of AKG to its active and retired employees as well as their families and friends.
Location	Hofgeismar, Germany
HYBUILD participants	Andreas Strehlow, AKG
Nature of participation	Andreas Strehlow presented the HYBUILD project with a poster and explanations, plant tour was given to interested guests HYBUILD was one station in the AKG showroom
Number of attendees	500+, about 10 were given detailed explanation of the project
Feedback & added-value	Great interest and support for the project targets. However, doubt whether the technologies will be affordable.
Picture(s)	 <p style="text-align: center;">New AKG Showroom</p>



Date	28-29 September 2018 (pre-events also organised on 21-22 September)
Event name	Researchers' Night 2018 (Nit Europea de la Recerca 2018)
Event description	Workshops, talks, expositions, guided visits, and open-air activities for all ages with the aim of bringing science, research and technology closer to the general public
Location	Lleida, Spain
HYBUILD participants	UDL, ALM
Nature of participation	HYBUILD poster
Number of attendees	Around 200
Feedback & added-value	HYBUILD poster was exposed to the participants attending the events organised on 21 September and also on 28 September. Representatives from UDL were in charge of explaining to the general public any questions related to the aim of HYBUILD and its environmental and societal benefits. Such explanations help in improving the social acceptance of innovative concepts that

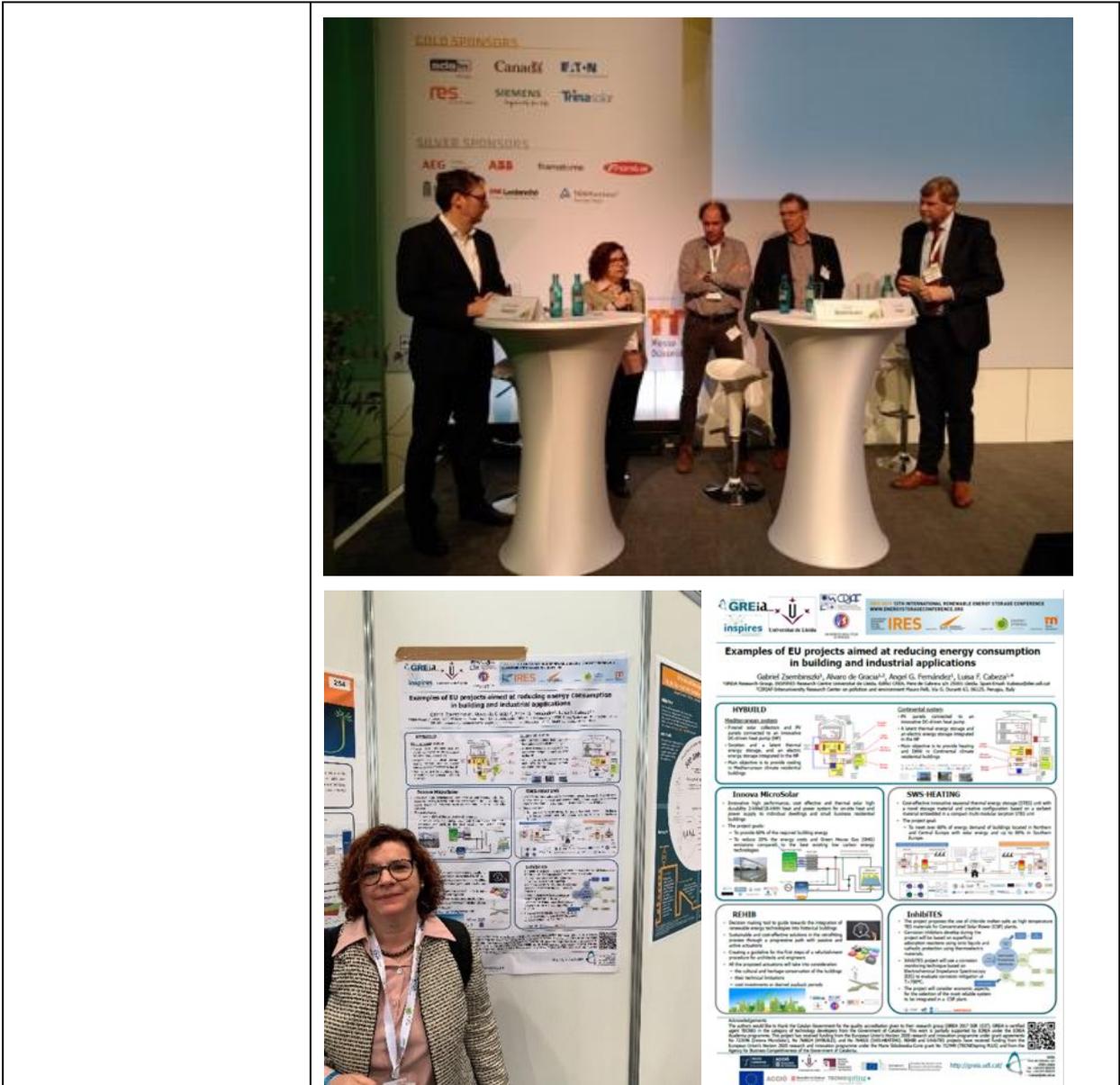
	<p>receive support from the European Commission through H2020 funding programme.</p>
<p>Picture(s)</p>	 

Date	11 September 2018
Event name	IEEE RTSI 2018 (1.2 Electricity from renewable energy A)
Event description	4 th International Forum on Research and Technologies for Society and Industry (1.2 Smart solutions for balancing power grid with high penetration of renewable)
Location	Palermo, Italy
HYBUILD participants	Diego Arnone (ENG)
Nature of participation	Invited speaker
Number of attendees	15
Feedback & added-value	The speech was a bird's eye view of some of the "smart energy projects" that are currently ongoing in the Engineering Research

	and Development Laboratory, including HYBUILD, in the role of key technology provider.
Picture(s)	

Date	28 September 2018
Event name	Researchers' Night Almatret 2018 (<i>Nit Europea de la Recerca 2018</i>) "Behind Innova Microsolar and HYBUILD European projects"
Event description	This event was intended for local neighbours to know about and understand the European projects located in their town and furthermore to learn about the methods and scientific research behind each project. Politicians from the municipality assisted and introduced the event explaining the origin and context of the Researchers' Night. After, explanations by UDL researcher about the scientific works behind the projects HYBUILD and Innova Microsolar were done (information about the consortium, partners involved, dissemination tasks, environmental and societal benefits of the project, etc.). After the presentation given by UDL researcher, a guided visit around the demo site was done.
Location	Almatret, Spain
HYBUILD participants	ALM and UDL
Nature of participation	HYBUILD poster and presentation assisted by slides
Number of attendees	30. Please note that in Almatret local population in real terms isn't more than 150 people, so we can consider a 30-people assistance as a success.
Feedback & added-value	Attendees were very grateful for the explanations and overall impressed. Explanations during the event helped in improving the social acceptance of innovative concepts that receive support from the European Commission through H2020 funding programme.
Picture(s)	

	 <p>The image shows a group of approximately 20 people, including men and women of various ages, posing for a group photo in front of a building. A large poster is visible in the background, which is a flyer for the 'NIT EUROPEA DE LA RECERCA 2018'. The poster contains the following text:</p> <p>NIT EUROPEA DE LA RECERCA 2018</p> <p>DIVENDRES 28 DE SETEMBRE A LES 16:00H AL PATI DE LES ESCOLES</p> <p>DE VALORADA I SEGUIMENT DEL PROJECTE ALMIA per part de l'Ajuntament</p> <p>XE Ronda. La investigació científica darrere els projectes <i>Hybuild i Innova MicroSolar</i></p> <p>Per part del Dr. Álvaro de Gracia del grup de recerca GREiA de la UdL</p> <p>The poster also features logos for HYBUILD, InnovamicroSOLAR, almia, GREiA, and the University of Lleida (UdL).</p>
Date	12– 14 March 2019
Event name	International Renewable Energy Storage Conference (IRES 2019)
Event description	The IRES conference core is dedicated to scientific findings on storage systems in the world of smart and distributed energy resources - its central focus on storage technology encompasses also legal, policy, network and market aspects. The Energy Storage Europe track complements this focus with business and finance dimensions of these technologies in the global market.
Location	Messe Düsseldorf, Germany
HYBUILD participants	UDL
Nature of participation	Poster regarding the different EU projects in which UDL is participating, including HYBUILD
Number of attendees	Around 300 people
Feedback & added-value	The two innovative hybrid energy storage concepts developed by HYBUILD were exposed to the IRES 2019 participants. The event was an excellent opportunity to raise awareness about the HYBUILD project and to answer questions posed by researchers and stakeholders interested in the topic of renewable energy and energy storage.
Picture(s)	



Date	27 September 2019
Event name	Researchers' Night 2019
Event description	HYBUILD project was briefly presented during the NTUA participation in the annually organized pan-European science and research fair "Researchers' Night 2019". During this evening, several scientific research projects were presented to the wider public. The event was attended by members of the academic community from all over the world, while also including school visits. The event was advertised in the media, attracting a large number of citizens, mainly families with young children, eager to become familiar with the latest achievements in European technology and research.

Location	Athens, Greece
HYBUILD participants	NTUA
Nature of participation	Banner, short oral presentation of project goals & current status
Number of attendees	Approx. 2000
Relevant URL	http://www.researchersnight.gr/
Feedback & added-value	<p>Based on the experience gained from the participation of the project, it can be claimed that positive feedback was received, since a large number of people were informed about the technical aspects of the HYBUILD concept and discussed the possibilities for its exploitation. Namely, the added value from the conference can be concluded to the following:</p> <ul style="list-style-type: none"> • Dissemination of the project across the scientific, the educational, as well as the local community, including young children and adolescents, positively interacting with the next generation of young researchers. • Interaction with researchers from other laboratories and institutions, working on other European projects of similar subjects.
Picture(s)	
Date	27 September 2019
Event name	Nit Europa de la Recerca 2019 (European Researchers' Night 2019)

Event description	European Researchers' Nights are public events dedicated to bringing researchers closer to the public. They showcase the diversity of research and highlight the impact of research on our daily lives. The aim is also to motivate young people to embark on research careers. The events promote how researchers contribute to our society by displaying their work in an interactive and engaging forum.
Location	University of Lleida (UDL), Lleida, Spain
HYBUILD participants	UDL
Nature of participation	HYBUILD roll-up
Number of attendees	439
Feedback & added-value	A roll-up describing the HYBUILD project was placed at the Europe's Corner of the event dedicated to the EU projects in which UDL is involved. The participants had the opportunity to get in touch with European research and know more about the new technologies and the current challenges that the actual research is dealing with in different areas. HYBUILD approach to tackle these challenges was explained to those participants who showed interest on the topic.
Picture(s)	



Date	24-25 September 2021
Event name	Nit Europea de la Recerca 2021 (European Researchers' Night 2021)
Event description	European Researchers' Nights are public events dedicated to bringing researchers closer to the public. They showcase the diversity of research and highlight the impact of research on our daily lives. The aim is also to motivate young people to embark on research careers. The events promote how researchers contribute to our society by displaying their work in an interactive and engaging forum.
Location	Lleida and Almatret, Spain, and online (https://researchersnight.udl.cat/)
HYBUILD participants	UDL: Luisa F. Cabeza, Gabriel Zsembinski, and the rest of the UDL team ALM: Alex Florensa and Jordi Tarragó (Almatret major)
Nature of participation	HYBUILD poster (online) and roll-up (on-site), two posters related to HYBUILD (online), one on-site activity in Almatret
Number of attendees	-
Feedback & added-value	A poster and a short video describing HYBUILD was placed in the "Europe's Corner" tab on the webpage of the event, as well as two

posters acknowledging HYBUILD in the “La nostra recerca” (“Our research”) tab.

Moreover, a roll-up about the project was located at the “Europe’s corner” physical space at the University of Lleida, dedicated to the EU projects in which the University of Lleida is involved.

Additionally, an event was organised by UDL on 25 September in Almatret, with the support of the Almatret municipality, where Gabriel Zsembinski explained the facilities that the University of Lleida has installed in Almatret, one of them being the HYBUILD demo.

The participants had the opportunity to get in touch with European research and know more about the new technologies and the current challenges that the actual research is dealing with in different subjects.

To enhance the engagement with the visitors of the webpage and the on-site participants, the posters, videos, and face-to-face explanations were done in Catalan or Spanish.

Picture(s)

HYBUILD poster + video (online):

.....

Projecte HYBUILD (Visualitza el vídeo)
+info a la web

.....

Posters (online):

24 Setembre
2021
Lleida
CATALUNYA

Análisis de ciclo de vida (ACV) del sistema HYBUILD de almacenamiento híbrido para edificios residenciales

Estudiante doctorando: Noelia Llantoy
Director: Dra. Luisa F. Cabeza
Grupo investigación: GREiA

Introducción

¿Qué es el sistema HYBUILD?

Es un sistema que almacena energía, tanto térmica como eléctrica, que ayuda a las viviendas a mantener las temperaturas de confort, tanto en un clima mediterráneo como continental. La energía renovable es la principal fuente de energía de este sistema. Se trata de un sistema eco-eficiente, que ayuda a disminuir la demanda de energía y el impacto al medio ambiente.

Funcionamiento del sistema en diferentes zonas climáticas:

Metodología ACV

¿Cuál es el ciclo de vida de un producto?

Definición de ACV:

- El ACV es una metodología que evalúa los impactos ambientales considerando todas las fases del ciclo de vida de un producto o sistema. El ACV es un análisis que considera que los productos nacen y mueren.
- Este planteamiento es conocido como "de la cuna a la tumba".
- La metodología de ACV está basada en las normas internacionales ISO 14040 y ISO 14044.

Resultados

¿Cómo se enfocó el estudio de ACV del sistema HYBUILD?

Para realizar el estudio, se eligió un edificio de referencia para poder evaluar el uso del sistema HYBUILD comparado con un sistema convencional de referencia. Los resultados mostraron que los impactos ambientales del sistema HYBUILD son más altos en la etapa de fabricación, mientras que en la etapa de uso de la vivienda (durante 30 años) disminuye los impactos ambientales respecto al sistema convencional de referencia.

AGRADECIMIENTOS
 Ministerio de Ciencia, Innovación y Universidades de España (RT2018-09349-B-C11 - MCULM1-PEDUR, AEI) y del Ministerio de Ciencia, Innovación y Universidades - Agencia Estatal de Investigación (AEI) (PID2019-102431-B-I00). Los autores de la Universidad de Lleida agradan al Gobierno catalán por la acreditación de calidad del grupo de investigación (2017 SGR 1537). GREiA tiene certificación como agente TECNIO en la categoría desarrolladores tecnológicos del gobierno de Cataluña. También el presente trabajo tiene el apoyo de ICREA en el programa ICREA Academia. Este proyecto ha recibido financiación de las programaciones de investigación e innovación Horizonte 2020 de la Unión Europea en el marco de las acciones de investigación e innovación (101019187) y (101019187).
 La Noche Europea de la Investigación forma parte de las actuaciones de la "Researcher's night" que se celebra simultáneamente en toda Europa.

Analysis del cycle de la vida (ACV) del sistema HYBUILD de almacenamiento híbrido para edificios residenciales

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Desarrollo de nuevos sistemas de almacenamiento de energía térmica

(Visualitza el vídeo)

HYBUILD roll-up (on-site):

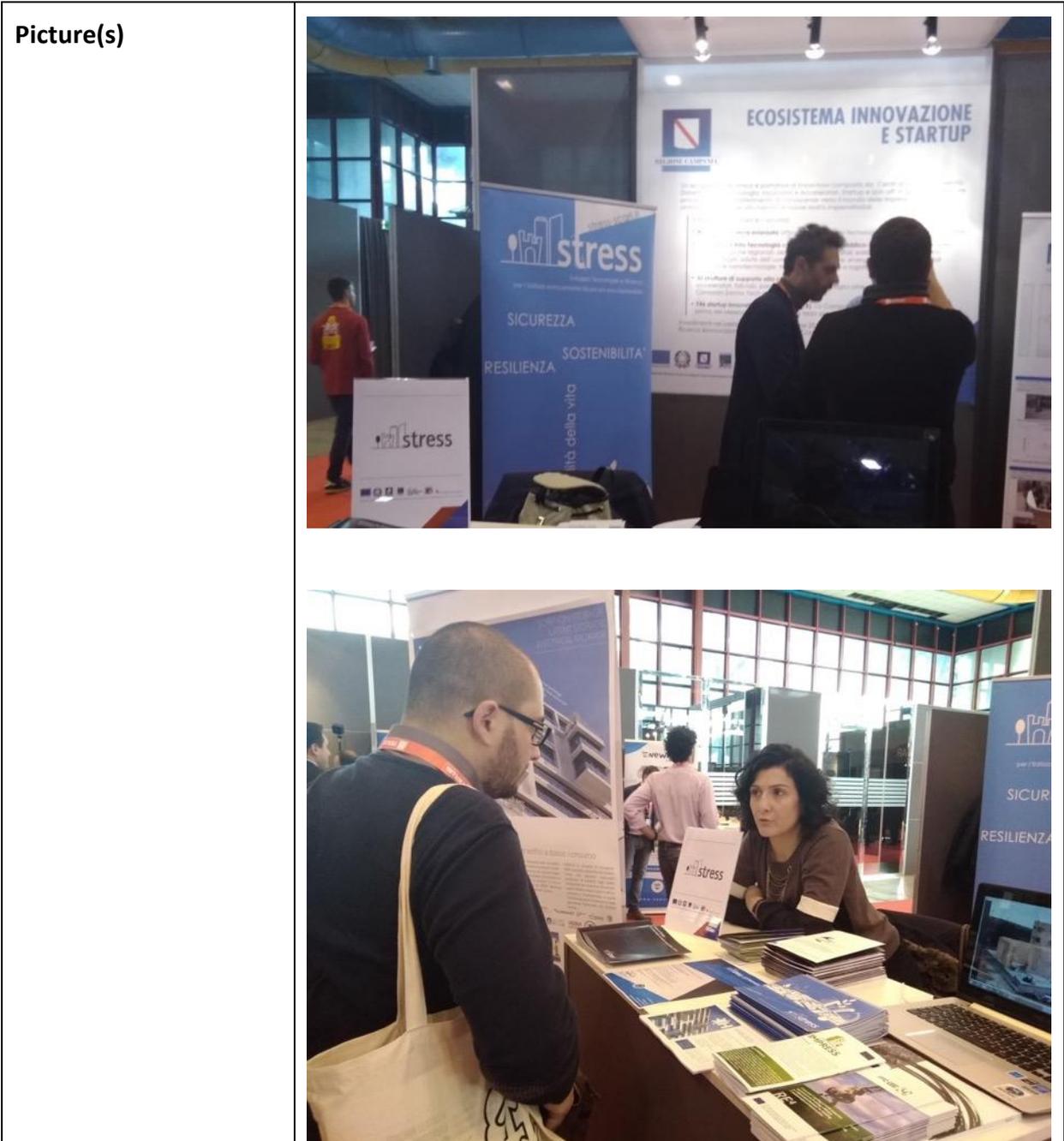


On-site activity in Almatret:



Date	5-7 April 2018
Event name	Energy Med
Event description	Conference Exhibition on Renewable Sources and Energy Efficiency in the Mediterranean
Location	Naples – Mostra d’Oltremare
HYBUILD participants	STRESS
Nature of participation	STRESS had its own stand and presented the HYBUILD poster
Number of attendees	More than 20,000 visitors
Picture(s)	

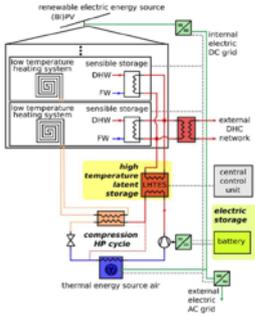
Date	13-14 December 2018
Event name	SMAU Napoli 2018
Event description	National roadshow of events on innovation, technology and ICT
Location	Naples – Mostra d’Oltremare
HYBUILD participants	STRESS
Nature of participation	STRESS was hosted in the Regione Campania stand, presented the HYBUILD poster and distributed some postcards
Number of attendees	3324
Feedback & added-value	



Date	28-29 March 2019
Event name	2 nd International Ochsner Partner-Congress 2019
Event description	The congress day in the densely staffed Oberbank Forum was filled with an intensive work program. CEO Karl Ochsner gave an outlook on the company's planned activities, including continuous annual research and development expenditures and the largest investment in the company's history to expand capacity at the company's location in Haag. The presentation of the latest innovations took up most of the morning. Among other things, the

	<p>self-developed Ochsner Tronic Smart (OTS) heat pump control system and the new Ochsner Air Hawk series were presented in detail. Ochsner made a commitment to non-explosive refrigerants in the highly topical subject of refrigerants and clearly rejected propane because of the high risk of explosion.</p> <p>A highlight in the afternoon was the lecture by Karl Ochsner sen., who presented future dimensions and perspectives for the use of large and high-temperature heat pumps for trade, industry and infrastructure.</p> <p>The company's commitment to environmental and climate change also underscores membership in the Climate Group of the World Wide Fund For Nature (WWF). The head of WWF Austria Andrea Johanides explained as a guest speaker how companies can contribute to making climate-friendly thinking and acting a matter of course in business and society.</p>
Location	Oberbank Donau-Forum, 4030 Linz, Austria
HYBUILD participants	1
Nature of participation	System partners
Number of attendees	500 from 22 countries
Feedback & added-value	
Picture(s)	 <p>The image is a promotional banner for the Ochsner Partnerkongress 2019. It features a blue background with a world map showing global connections. In the top right corner, the Ochsner logo is displayed with the text 'OCHSNER WÄRMEPUMPEN' and the slogan 'Für mich und die Natur'. In the bottom right corner, a woman with blonde hair, wearing a white blazer, is sitting in a white chair. At the bottom left, the text 'OCHSNER Partnerkongress 2019' is written in white.</p>



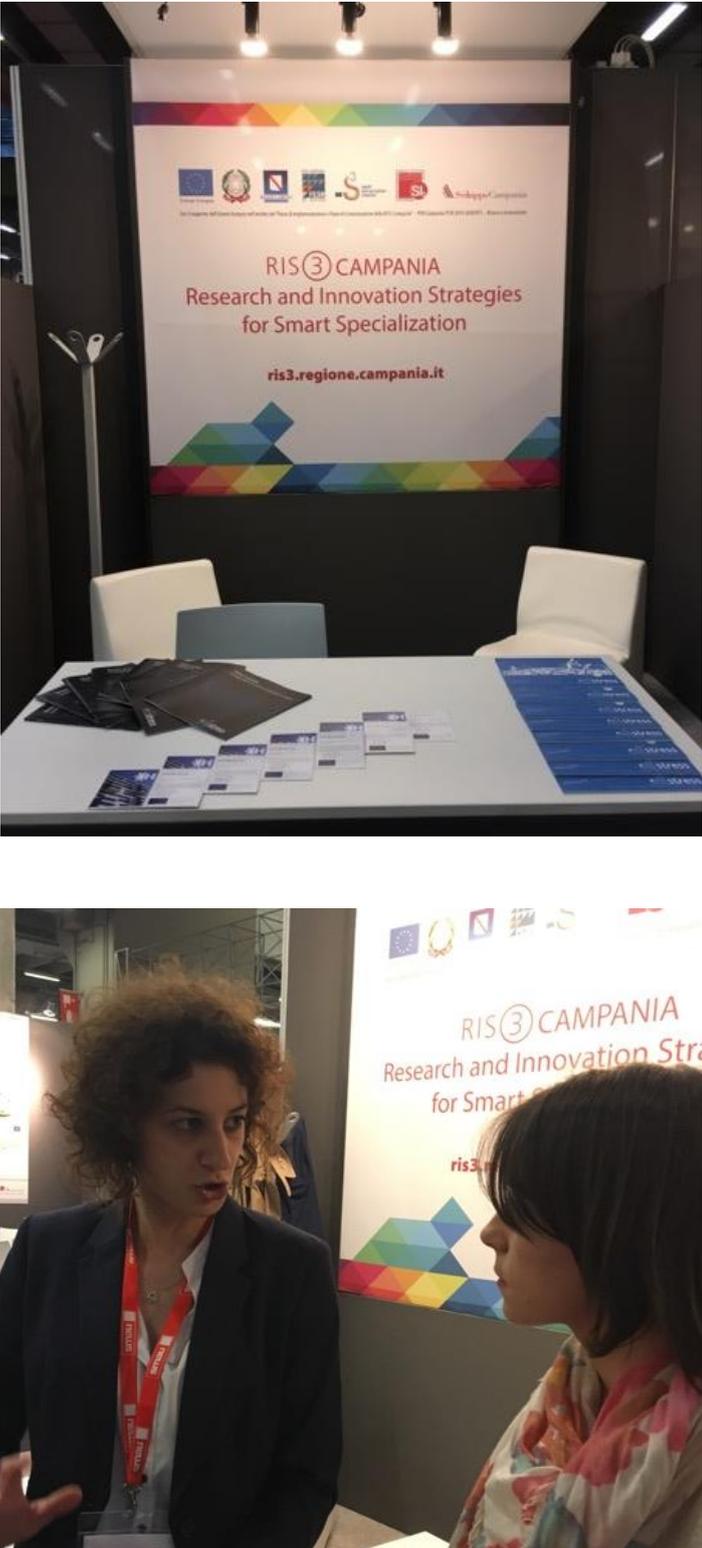
- Drehzahlgeregelte Split - Luft-/Wasser-Wärmepumpe für Heizen & Kühlen
- Alternatives Kältemittel R32
- Optimierter Kältekreis mit sehr geringer Kältemittelfüllmenge
- Integration eines thermischen Hybridspeichers (PCM) im Kältekreis für die WW-Bereitstellung
- Direkte Versorgung des Wärmepumpen-Inverters aus dem gebäudeinternen Gleichstromnetz (DC-grid) von Photovoltaik & elektrischem Energiespeicher

Für mich und die Natur





Date	6-7 June 2019
Event name	SMAU Bologna 2019 – R2B – Research to business
Event description	National roadshow of events on innovation, technology and ICT
Location	Bologna – Fiera
HYBUILD participants	STRESS

<p>Nature of participation</p>	<p>STRESS was hosted in the Regione Campania stand and distributed some HYBUILD postcards</p>
<p>Number of attendees</p>	<p>6371</p>
<p>Feedback & added-value</p>	
<p>Picture(s)</p>	 <p>The top photograph shows a booth for RIS3 Campania. A large white backdrop features the text 'RIS3 CAMPANIA Research and Innovation Strategies for Smart Specialization' and the website 'ris3.regione.campania.it'. The backdrop is decorated with a colorful geometric pattern at the top and bottom. On the table in front of the backdrop, several HYBUILD postcards are displayed. The bottom photograph shows two women engaged in a conversation at the booth. The woman on the left is wearing a dark blazer and a red lanyard. The woman on the right is wearing a light-colored top with a colorful patterned scarf. The RIS3 Campania backdrop is visible in the background.</p>

Date	9-11 September 2019
Event name	ORC 2019 – 5 th International Seminar on ORC Power Systems
Event description	<p>The event was the international conference regarding ORC technology. The conference was attended by members of the ORC scientific community from all over the world, including distinguished researchers from leading research institutes, as well as young researchers taking their first steps in the field. In addition, representatives from the industry followed and enriched the discussions with their experience. The event provided to the participants a unique opportunity to exchange views, discuss theoretical ideas and share practical know-how, being a springboard for the further development of ORC technology through the conception and practical implementation of innovative concepts. More specifically, during the conference, over 124 presentations took place over three days in four parallel sessions attended by people from 33 countries around the world. In addition, a Poster Session was held, featuring 40 scientific studies.</p>
Location	Athens, Greece
HYBUILD participants	NTUA, DAIKIN
Nature of participation	Banner
Number of attendees	250-300
Feedback & added-value	<p>The participation of the HYBUILD project in the European Corner held during the conference, has a positive impact on the dissemination of the project and its further implementation. More specifically, the following aspects summarize the feedback received:</p> <ul style="list-style-type: none"> • Interaction with partners from other European projects of similar subject. • Interaction with industrial members, realizing the next steps for the further exploitation of the concept.
Picture(s)	

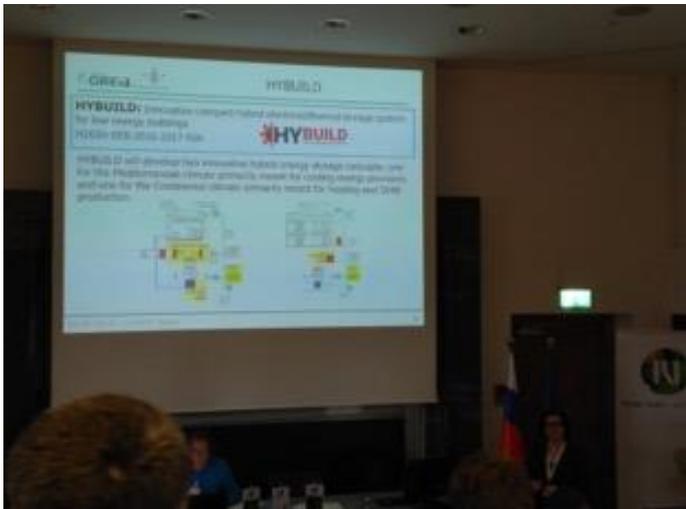


Date	24-26 October 2019
Event name	SAIE Bari
Event description	Technologies towards Building and Built Environment 4.0
Location	Bari – Fiera del Levante
HYBUILD participants	STRESS
Nature of participation	Desk – Post card distribution
Number of attendees	20137
Feedback & added-value	
Picture(s)	

Date	22-23 February 2018
Event Name	SHAPE ENERGY Sandpits
Event description	<p>The main goal of the SHAPE ENERGY sandpits is to bring people together who are interested in improving and innovating and who, crucially, are currently or have recently been involved in EU-funded projects on similar topics as the main subject of the sandpits.</p> <p>These events are aimed at:</p> <ul style="list-style-type: none"> • reflecting on current direction and task in individual projects; • generating concrete ideas for increasing impacts on society;

	<ul style="list-style-type: none"> • experiencing innovative methods of interdisciplinary and cross-sector working within energy and transport projects; • meeting cross-Europeans collaborators in a stimulating environment and generating future project ideas for progressing energy related topics.
Location	Torino, Italy
HYBUILD participants	R2M
Nature of participation	R2M represented HYBUILD participated in the third track entitled “Energy system optimisation and smart technologies”. The HYBUILD poster was displayed in the exhibition area of the event.
Number of attendees	Around 60
Feedback & added-value	HYBUILD brought the energy storage dimension into the energy optimisation concepts scenarios elaborated with the other projects participating to the sandpits. The event has helped raising awareness about the HYBUILD project and connecting with sister-projects.
Picture(s)	

Date	09–11 April 2018
Event name	IEA ECES / SHC - Annex 33 / Task 58
Event description	<p>The main goal of the ECES Annex 33 is to bring together people who are interested in improving and innovating PCM and TCM thermal energy storage materials enhancement.</p> <p>The event main topic concerns and its leaders were:</p>

	<table border="0" style="width: 100%; text-align: center;"> <thead> <tr> <th style="width: 50%;">PCM</th> <th style="width: 50%;">TCM</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="background-color: #f06292; padding: 5px;"> Subtask 1: “Energy Relevant Applications for an Application-oriented Development of Improved Storage Materials” </td> </tr> <tr> <td colspan="2">Andreas Hauer (ZAE, DE) /Wim van Helden(AEE Intec, A)</td> </tr> <tr> <td colspan="2" style="background-color: #fff9c4; padding: 5px;"> Subtask 2: “Development and Characterization of Improved Materials” </td> </tr> <tr> <td>Stefan Gschwander (ISE, DE)</td> <td>Alenka Ristic (NIC, SI)</td> </tr> <tr> <td colspan="2" style="background-color: #fff9c4; padding: 5px;"> Subtask 3: “Measuring Procedures and Testing under Application Conditions” </td> </tr> <tr> <td>Christoph Rathgeber (ZAE, DE)</td> <td>Daniel Lager (AIT, A)</td> </tr> <tr> <td colspan="2" style="background-color: #f06292; padding: 5px;"> Subtask 4: “Component Design for innovative TES Materials” </td> </tr> <tr> <td>(Ana Lazaro, Uni Zaragoza, ES)</td> <td>Benjamin Fumey (EMPA, CH)</td> </tr> </tbody> </table> <p>It is also a crucial event to meet cross-Europeans collaborators in a stimulating environment and generating future project ideas for progressing thermal energy storage related topics.</p>	PCM	TCM	Subtask 1: “Energy Relevant Applications for an Application-oriented Development of Improved Storage Materials”		Andreas Hauer (ZAE, DE) /Wim van Helden(AEE Intec, A)		Subtask 2: “Development and Characterization of Improved Materials”		Stefan Gschwander (ISE, DE)	Alenka Ristic (NIC, SI)	Subtask 3: “Measuring Procedures and Testing under Application Conditions”		Christoph Rathgeber (ZAE, DE)	Daniel Lager (AIT, A)	Subtask 4: “Component Design for innovative TES Materials”		(Ana Lazaro, Uni Zaragoza, ES)	Benjamin Fumey (EMPA, CH)
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(Ana Lazaro, Uni Zaragoza, ES)	Benjamin Fumey (EMPA, CH)																		
Location	Ljubljana, Slovenia																		
HYBUILD participants	UDL, ITAE																		
Nature of participation	Collaboration to share expertise IEA ECES Annex 33																		
Number of attendees	Around 60 persons																		
Feedback & added-value	HYBUILD brought an example of two innovative hybrid energy storage concepts: one for the Mediterranean climate primarily meant for cooling energy provision, and one for the Continental climate primarily meant for heating and DHW production. The event has helped raising awareness about the HYBUILD project and connecting with sister-projects.																		
Picture(s)																			

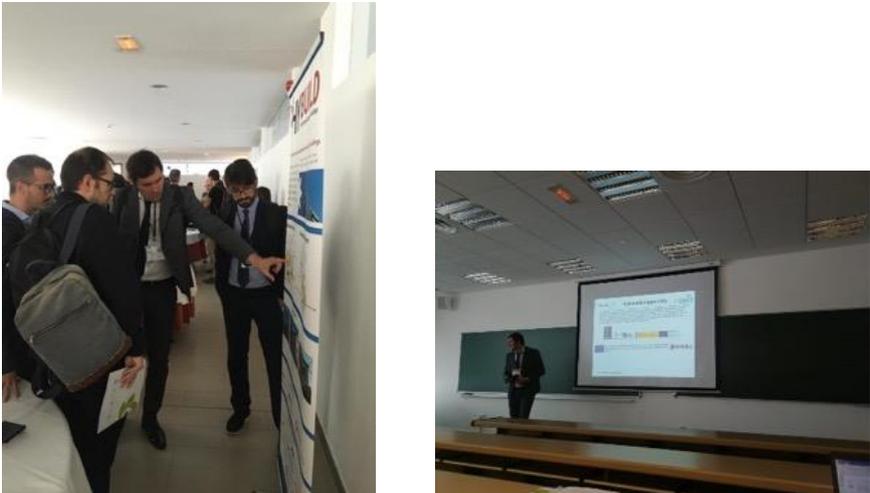
Date	12-15 June 2018
Event name	IEEE EEEIC 2018
Event description	18 th International Conference on Environment and Electrical Engineering
Location	Palermo, Italy
HYBUILD participants	Diego Arnone (ENG)
Nature of participation	Special Session - Energy Prosumers Flexibility for Future Smart Grids
Number of attendees	30
Feedback & added-value	Overall presentation of the project with a specific focus on the relevance of smart energy control in the building domain

Date	20-22 June 2018
Event name	CIES 2018 - XVI Congreso Ibérico y XII Congreso Iberoamericano de Energía Solar (CIES 2018)
Event description	Most important Solar Energy Conference of the countries of LATAM, Portugal & Spain (Spanish and Portuguese language areas). CIES is the reference event for all those related to the development, implementation and learning of solar energy technologies, with the goal of promoting the use of solar energy in the Iberoamerican regions, in different fields such as buildings, transportation, electric generation of process heat.
Location	Madrid, Spain
HYBUILD participants	Antoni Castells (Fresnex) Luisa Cabeza (UDL), Gabriel Zsembinski (UDL)
Nature of participation	Fresnex was invited to present its upcoming Concentrating Solar Heat (CSH) projects in Spain. This presentation was done in the framework of a SolarConcentra meeting, which is the Spanish platform that promotes the use of concentrating solar technologies in industrial process heat. One slide regarding HYBUILD was presented.
Number of attendees	Around 35 participants and 20 via streaming.
Feedback & added-value	There are only very few CSH installations currently in operation in Spain. Fresnex received a very enthusiastic feedback after sharing its plans to have four operative CSH installations in Spain during the upcoming months (including the HYBUILD project).



Date	4 October 2018
Event name	EFINTEC 2018
Event description	EFINTEC is directed at installation companies, distributors and maintenance professionals in the electric, thermal equipment, home renovation and renewable energy sectors.
Location	Barcelona, Spain
HYBUILD participants	COMSA
Nature of participation	Speaker
Number of attendees	24
Feedback & added-value	<ul style="list-style-type: none"> -Connections with the coordinators of related HYBUILD projects (SCORES and TESSe2b). -Identification of key timeline points for possible synergies in implementation.

Date	12–14 June 2019
Event name	XI National and II International Engineering Thermodynamics Congress
Event description	The XI National and II International Engineering Thermodynamics Congress took place in Albacete, Spain. This congress was a unique meeting point for different university lecturers and professors, researchers, and professionals who develop activities in the field of

	<p>engineering thermodynamics. Every two years the congress is the meeting point for the different Spanish researchers in this topic for twenty years. Starting from the previous edition held in 2017, the initially national congress also became international to allow the attendance of participants from all over the world to exchange experiences that improve the level of teaching, research and industry in the different fields where the engineering thermodynamics plays an important role.</p>
Location	Castilla-La Mancha University, Albacete, Spain
HYBUILD participants	UDL
Nature of participation	HYBUILD roll-up posted at the Europe's corner and one oral presentation
Number of attendees	More than 170 participants
Feedback & added-value	<p>Some young researchers from different Spanish universities were interested in receiving more details regarding the two systems developed within HYBUILD. A brief description of the project and the PCM selection methodology for both latent storages was explained in the oral presentation by Gabriel Zsembinski. Acknowledgements to HYBUILD were shown at the end of the presentation.</p>
Picture(s)	

Date	22 August 2019
Event name	Colloquium on Latent Storage
Event description	<p>Final presentation of a project investigating the application of phase change slurries (PCS = PCM emulsified in water) in combination with a heat pump and PV to optimise the load management.</p> <p>Many similarities to HYBUILD project, just smaller.</p>

Location	Stiebel Eltron, Holzminden, Germany
HYBUILD participants	Andreas Strehlow, AKG
Nature of participation	Andreas Strehlow participated as visitor. HYBUILD-postcards were distributed to interested participants and more detailed information on the HYBUILD project was given to experts from Stiebel Eltron, Fraunhofer UMSICHT, and University of Lemgo.
Number of attendees	28 experts for latent storage
Feedback & added-value	Great interest in HYBUILD project. Many similarities in analysis and benefits of using latent storage to optimise the use of PV-electric power. The application of PCS in existing storage solutions (i.e. water tanks) is easy but by far not as compact as the integration of PCM in the heat exchangers, which is demonstrated in the HYBUILD project.
Picture(s)	 <p style="text-align: center;">Opening of the colloquium on Latent Storage</p>

Date	9-13 September 2019
Event name	36 th EU PVSEC
Event description	European PV Solar Energy and Conference Exhibition
Location	Marseille, France
HYBUILD participants	CSEM – Pierre Jean ALET
Nature of participation	Presentation in session 4.DO.4
Number of attendees	30
Feedback & added-value	Awareness raising for the HYBUILD project

Picture(s)

