

## D4.4 Final report on dissemination and communication activities



**THEGREEFA**

**Thermochemical fluids in greenhouse farming**

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## Document references

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<sup>1</sup> PU = Public

PP = Restricted to other programme participants (including the Commission Services)

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## Document history

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## Table of Contents

<b>Executive Public Summary .....</b>	<b>5</b>
<b>Lists of figures .....</b>	<b>6</b>
<b>List of tables.....</b>	<b>6</b>
<b>1. Document information .....</b>	<b>7</b>
a. Relation to other activities .....	7
b. Partners contribution .....	8
<b>2. Dissemination Plan .....</b>	<b>10</b>
a. Stakeholders and target audiences .....	10
b. Channels for communication.....	11
c. Training and workshops.....	12
i. Training programme.....	12
d. Final conference .....	13
e. National and International Events.....	13
<b>3. Report on dissemination activities .....</b>	<b>15</b>
a. Dissemination performance indicators .....	15
b. Events .....	16
c. Print media .....	21
i. Press-releases .....	21
ii. Scientific publications .....	23
iii. Technical publications .....	25
iv. KPI reference.....	26
<b>4. Dissemination tools .....</b>	<b>27</b>
a. Logo .....	27
b. Brochure .....	27
c. Video.....	28
d. Poster.....	29
e. Social media.....	30
i. LinkedIn.....	30
ii. X .....	31
f. Website.....	31
i. Structure of the website .....	32
ii. Website statistics .....	33
g. Practice abstracts.....	33
<b>5. Cluster engagements &amp; Networking .....</b>	<b>36</b>

**6. Conclusions ..... 41**

**7. Appendix..... 42**

    a. Verification means for the performed dissemination activities. .... 42



## Executive Public Summary

The report is a public document delivered in the context of WP4, Task 4.1: *Development of the Dissemination Plan and Networking activities*, for the final report on of the dissemination activities of TheGreefa project. It reports all performed dissemination actions from the beginning of TheGreefa project (October 2020) till the end of the 44<sup>th</sup> month of the project (May 2024).

The report is a public document, and anyone has access to read it. The main target audience of this report are the representatives of the European Commission to show the results of dissemination and communication activities undertaken in TheGreefa project.

This deliverable includes information about the appearance of the project in public through the events, publication of the project results as scientific publications and press releases and the use of the dissemination materials like posters or brochures.

## Lists of figures

Figure 1. Relation between work packages and dissemination activities.....	8
Figure 2. The Policy Brief prepared by TheGreefa. ....	26
Figure 3. TheGreefa logo.....	27
Figure 4. TheGreefa brochure – Side A .....	27
Figure 5. TheGreefa brochure – Side B .....	28
Figure 6. TheGreefa video on the home page of the project website. ....	28
Figure 7. TheGreefa roll-up poster (85x200 cm). ....	29
Figure 8. New design of TheGreefa poster.....	29
Figure 9. Official TheGreefa profile in LinkedIn.....	30
Figure 10. Official TheGreefa profile in x.com.....	31
Figure 11. Homepage of the project website.....	32
Figure 12. News section of TheGreefa website.....	33
Figure 13. The 1 <sup>st</sup> batch of the practice abstracts available on TheGreefa website. ....	34
Figure 14. AREA ZERO logo.....	37
Figure 15. AREA ZERO website. ....	38
Figure 16. The AREAZERO brochure – Side A. ....	39
Figure 17. The AREA ZERO brochure – Side B. ....	39
Figure 18. AREA ZERO poster .....	40

## List of tables

Table 1. Partner’s contribution to dissemination activities .....	8
Table 2. Key target audiences for TheGreefa project .....	10
Table 3. Methodology to reach target groups. ....	11
Table 4. Dissemination Key Performance Indicators (KPI) .....	15
Table 5. List of done events where TheGreefa was presented.....	17
Table 6. List of press-releases .....	22
Table 7. List of scientific publications.....	23
Table 8. List of technical publications. ....	25

## 1. Document information

This Deliverable comprises the actions undertaken in *T4.1 Development of the Dissemination Plan and Networking activities*. The development of the dissemination plan was done by M6 to assure the project's visibility in the European market. This report is an update on what was presented in the previous reports delivered in M18 (D4.3) and M36 (D4.11). The Dissemination Plan details the actions/events/documents for each target group and each partner in the project. The purpose of undertaking the dissemination activities according to the dissemination plan is to enlarge interest, involve public and private stakeholders and finally introduce the products to the market. The Consortium Partners being a part of the agriculture value chain, like the greenhouse owners, have sufficient materials and knowledge to move to the next future phase in the commercialisation of the developed products. The interested SME partners of the project and the involved industrial network using personnel links and dissemination activities (workshops, fairs, etc.) are also interested to continue the work after the conclusion of the project. This should permit them to arrive at the final stage of introduction onto the market, using other instruments offered by the Commission or by their investments.

The design of an effective dissemination plan (DP) for the project results allows to reach potential target customers and build the business network in the markets like solar and/or residual heat from industry, here from greenhouse farming, and the involved stakeholders as well as on an assessment of non-technical barriers, mainly related to the strict environmental policies regulations and nature of the sector, its attitude towards lower initial investments using state of the art proven technologies as well as difficulty in retrieving clear information on actual economic advantages related to new technologies.

Dissemination measures are conceived as a continuous process of providing information on the quality, relevance, impact, and effectiveness of the results of the project to key stakeholders in the value chain – targeted at the scientific community, opinion makers and potential users – to achieve the maximum impact of project results and an optimal return on investment of the European taxpayer's money. This is achieved by close multidisciplinary cooperation between the research community and industry through complementary actions to achieve technical leadership in sustainable processing and refining.

### a. Relation to other activities

The dissemination and communication activities are strongly related to the project results. In Figure 1 the relation between different Work Packages (WPs) of TheGreefa project and the WP4 for the dissemination is presented.

The Work Packages having the most relevant impact on the commercial side of the project is the WP1, where the demonstrations of developed solutions are performed and tested, but also WP3 where the developed technology is evaluated considering environmental, technoeconomic and social aspects.

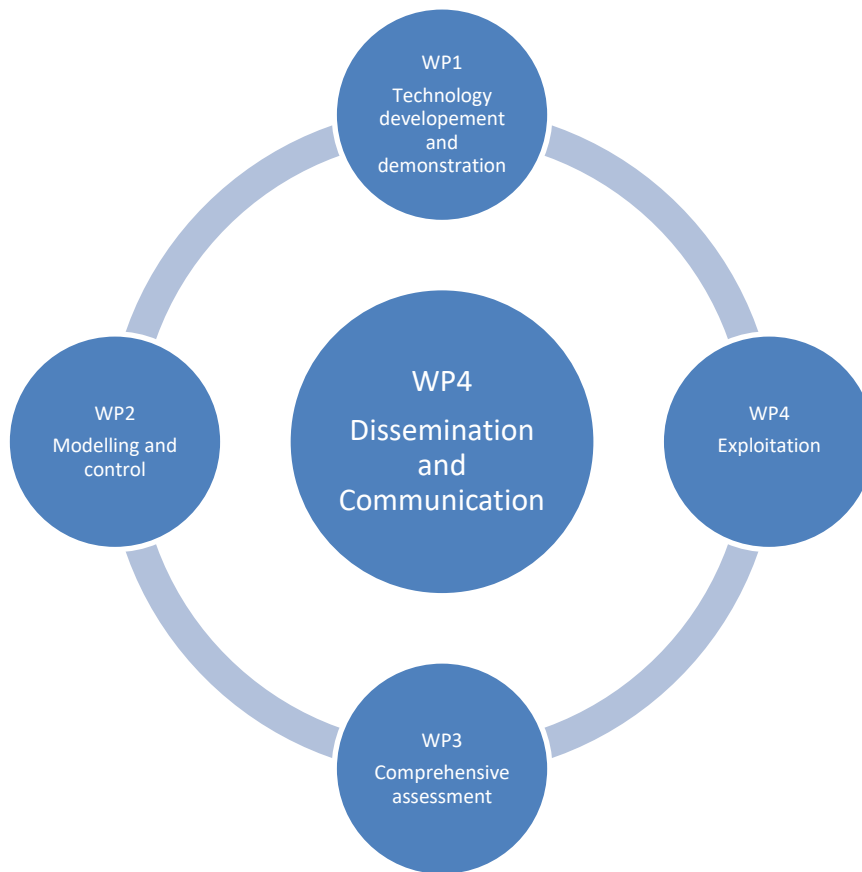


Figure 1. Relation between work packages and dissemination activities.

### b. Partners contribution

There must be marked relevant partner’s contribution, as they are the ones that have technical knowledge of the project and are responsible for press releases, participation in events and providing the trainings. In Table 1 there is shown role of each partner in the dissemination process.

Table 1. Partner’s contribution to dissemination activities

Partner acronym	Main role in the project	Contribution to dissemination activities
ZHAW	Coordinator; provided know-how on absorption/desorption processes and knowledge on thermodynamics, system integration, simulations	Training, press releases, publications, participation in events, networking and clustering organisation, preparation of training and workshop, translation of dissemination tools
WATERGY GMBH	Provided know-how on existing models for absorption/desorption processes and data from previous projects	Press releases, participation in events, preparation of training and workshop, translation of dissemination tools
TUB	Provided expertise on thermo-chemical processes involved in the project; involved in the planning realisation and monitoring of Demonstrator 2.	Press releases, participation in events, preparation of training and workshop, translation of dissemination tools



INRGREF	Contributed to organize the construction of a new research greenhouse prototype.	Press releases, participation in events, preparation of training, translation of dissemination tools
SFERA	Carried out a case study for the greenhouse; contribute to dissemination and communication activities, and Stakeholders engagement.	Press releases, participation of events, translation of dissemination tools
HYPERBOREA SRL	Contributed to dissemination and communication activities, and Stakeholders engagement for future marketability.	Press releases, participation in events, preparation of training and workshop, translation of dissemination tools
Meyer Orchideen	Operated the greenhouse for the demonstrator and contributed to support the partners in modelling and market assessment.	Press releases, participation in events, preparation of training and workshop, translation of dissemination tools
STRANE	Brought contributions on the market evaluation, the case studies, technoeconomic and socioeconomic evaluation, exploitation strategy and IPR management.	Press releases, participation in events, preparation of training, translation of dissemination tools
IZNAB	Leader of dissemination and communication activities. Performed environmental assessment and technoeconomic evaluation.	Website, leaflet and brochure preparation and update, coordination of preparation training, workshops. Final conference and international workshops organisation
UAL	Performed case studies and supported all the other activities.	Press releases, participation in events, translation of dissemination tools, communication with local authorities
MAS	Contributed in the comprehensive assessment – socioeconomic evaluation and policy recommendations.	Press releases, participation in events, translation of dissemination tools, communication with local authorities
LUH	Provided expertise on modelling and simulation in the context of heating and cooling systems.	Press releases, participation in events, translation of dissemination tools, communication with local authorities

IZNAB created a specific template to collect the data about performed and planned dissemination activities. Partners were invited to periodically check the data and update them if needed.

## 2. Dissemination Plan

For better monitoring and performance of the dissemination actions a timeline was developed presenting when specific actions should be performed. The dissemination plan was updated when necessary and at least for each reporting period.

### a. Stakeholders and target audiences

To ensure proper performance of the dissemination activities, it needs to be defined who our target groups are. Also, when defined, the importance of the target audience needs to be considered. In Table 2, there are presented key target groups selected for the project divided into Key, Secondary and Tertiary groups.

**Table 2. Key target audiences for TheGreefa project**

	Target group	Sector
Key	Professionals	Greenhouse operators, farmers, building technology operators
	Consultancy	Farming, energy efficiency, city/urban planners
	Producers/ manufacturers/ sellers	Energy systems, greenhouse systems, water/ wastewater/ energy supply engineers
	Research Institutes	R&D in energy efficiency, circular economy
Secondary	Greenhouse owners	Private
	Scientific communities and Educational Institutions	Universities, schools, formation centres
Tertiary	Associations, chambers, public entities, media	Agriculture, energy efficiency, environment, circular economy
	General Public	At EU level as well as global

Targeted collectives for dissemination practices included a broad variety of organizations and individuals acting on behalf of these organizations, such as greenhouse operators, building technology operators, climate control specialists, farmers, city/urban planners, water/wastewater/energy supply engineers, that are agents of change in efforts for establishing symbiosis with the decision-makers in relevant Industries, local authorities and national/regional public bodies; European Networks of Cities; research community.

As stakeholders, Agriculture authorities/companies/associations were specifically contacted and informed on the logic, products, results and exploitation opportunities realized within this project.

## b. Channels for communication

To address selected target groups certain channels of communication must be used. The project must be recognised not only in the public field but also in the professional one. For this reason, the best way to get in touch with all those groups is through:

- **Internet** – using the internet as a tool of communication is efficient, as it allows for every targeted group to follow the project results. Therefore, the official website of the project [www.thegreefa.eu](http://www.thegreefa.eu) has been created and periodically updated with new content and news, as well as maintained social media accounts on Twitter and LinkedIn. TheGreefa's YouTube channel has been created where the project's promotional video and training materials are published. Additionally, the AREA ZERO cluster's website [www.areazerocluster.eu](http://www.areazerocluster.eu) has been created and managed.
- **Print media** – this channel is used for advertising purposes, as informing about the project through press releases, as well as for research communities. It promotes and informs about specific results obtained throughout the project. It includes the preparation and distribution of the project's brochures and posters.
- **Events** – participation in conferences, fairs, and workshops enhance the business relation contact, that are organised internationally, like international conferences.
- **Trainings** – the materials shared in the training programme to help external stakeholders to understand the developed technology in wider extension.
- **Networking** – workshops, trainings for the external groups not involved in the EU programme H2020/Horizon Europe.
- **Clustering** – workshops organised with other research projects.

**Table 3. Methodology to reach target groups.**

	Target group	Sector	Communication channels
Key	Professionals	Greenhouse operators, farmers, building technology operators	Internet, Print media, Events, Networking, Trainings
	Consultancy	Farming, energy efficiency, city/ urban planners	Internet, Print media, Events, Networking, Trainings
	Producers/ manufacturers/ sellers	Energy systems, greenhouse systems, water/ wastewater/ energy supply engineers	Internet, Print media, Events, Networking,
	Research Institutes	R&D in energy efficiency, circular economy	Internet, Print media, Events, Networking, Clustering
Secondary	Greenhouse owners	Private	Internet, Print media
	Scientific communities and Educational Institutions	Universities, schools, formation centres	Internet, print media
Tertiary	Associations, chambers, public entities, media	Agriculture, energy efficiency, environment, circular economy	Internet, print media
	General Public	At EU level as well as global	Internet, print media

### c. Training and workshops

TheGreefa project delivered a set of events directed specifically for the stakeholders and end-users, but for the general audience too. When creating the dissemination plan, the workshops were divided into 3 international workshops and 7 national workshops delivered by partners for their countries.

#### i. Training programme

The 1<sup>st</sup> version of the Training Plan has been developed within TheGreefa project in M12. The Education & Training Plan was planned to be executed by the development of the printable and PDF document – Training Manual – providing a detailed presentation of TheGreefa project, its activities and results, but also by organisation of a series of webinars dedicated to specific target groups. More details about the Training Manual are described in D4.2.

The developed structure of the Training modules was later updated in the last year of the project and the final version is as follows:

1. TheGreefa introduction
  - a. Consortium
  - b. Project outline
  - c. TheGreefa stages and concept
2. Demonstration of TheGreefa technologies
  - a. Demonstration in Switzerland
  - b. Demonstration in Tunisia
3. Simulations and optimisation
  - a. Simulations and modelling
  - b. Case study in Spain
  - c. Case study in Italy
4. TheGreefa impacts
  - a. Environmental impact
  - b. Economic impact
5. Social aspects and policies.

There was a delay in providing the final results and training content by the end of the project. Instead of organisation of webinars, the training presentation will be recorded by the partners and published in TheGreefa YouTube channel and website soon after the end of the project. 3 training videos are already published.

The presented content will be also compiled in one document in English, which will we then translated by the consortium into other languages. Such set of materials will be released through TheGreefa website and social media. The training manual will be also published in open access repositories to ensure its availability in open access.

#### **d. Final conference**

The responsible for the preparation of the final conference is IZNAB. In close collaboration with other partners the list of potential physical events for organisation of the final conference was created, considering also the costs. It was considered to organise the conference in Portugal within the Lisbon Energy Summit. However, finally considering the high cost, the risk was too big that the impact of our event will be not adequate to the resources spent.

The final event was organised on the 28<sup>th</sup> of May 2024 in Hamelin (Germany), close to Hannover. It took place in the facilities of the Institute for Solar Energy Research in Hamelin (ISFH). As the final market analysis concluded TheGreefa technology to not be ready for market but further research work is needed to reach that goal, the consortium decided to present the final results to the people related with research community, interested in the thermochemical networks. The final event summarized the overall achievements of the project.

#### **e. National and International Events**

##### **National workshops**

The national workshops were organised by TheGreefa partners. The purpose of these events is to present the project to the local general audience, not so much familiar with English. Initially, it was planned to organise such event in every country in TheGreefa project. However, some partners identified they do not have the capacity. Not every partner of TheGreefa is specialising in agricultural and greenhouse sectors. They can present general content in their national languages, but not being experts, are not able to provide more technical content and answer questions asked from the audience.

TheGreefa was able to organise 6 events considered as the national workshops in Spain (M24), in Germany (M22, M26 and M33), in Switzerland (M36) and in Italy (M44). The events were organised in national languages.

##### **International workshops**

IZNAB as the Dissemination Leader was responsible for the organisation of the three international events. 3 international workshops were organised as common online events with other EU-funded projects which created the AREA ZERO cluster.

The 1<sup>st</sup> international workshop took place on the 24<sup>th</sup> of March 2022 in the form of a webinar. The 2<sup>nd</sup> international workshop was also a joint event of AREA ZERO. That time, the event was organised online on the 22<sup>nd</sup> of September 2022 as a part of the EUSEW 2022 Extended Programme. All collaborating projects applied for a common session during the Policy Conference. Our application was evaluated very well, however, not enough to take place during the main session. Therefore, the Extended Programme was created by the EUSEW organisers for similar sessions a week before the main EUSEW event.

The 3<sup>rd</sup> international workshop was organised by the AREA ZERO on 14<sup>th</sup> of March 2024. The event was an online conference, where 3 remaining ongoing projects of AREA ZERO (TheGreefa, HyPErFarm and RESLIVE) presented their results for better energy and resource efficient systems for agriculture. In the moderated panel the representatives of the 3 projects discussed about social aspects related to the implementation of the new technologies. Also, 3 new members of AREA ZERO were introduced and gave their presentations (SYMBIOSYST, PV4Plants, REGACE). As relatively new projects, they will inherit the cluster management to keep it alive and bigger.

### 3. Report on dissemination activities

#### a. Dissemination performance indicators

In Table 4 below, the key performance indicators (KPI) that was declared in the GA are presented. They were the base for performed dissemination activities. The table presents also the achieved number compared to the goal KPI in reporting periods up to the end of the project (M1-M18, M19-M32 and M33-M44).

**Table 4. Dissemination Key Performance Indicators (KPI)**

Dissemination Activity	Target Audience(s)	KPI	M1-M18 Real value	M19- M32 Real value	M33- M44 Real value	Total
White Papers	All stakeholders	>=3	0	0	1	1
Showcases prototypes of Trade-Fairs	Industry	>=2	0	3	1	4
Participation in Exhibitions	Industry, RES service providers	>=7	0	3	1	4
Participation in Workshops	Industry, RES service providers	>=4	0	2	0	2
Participation in Conferences	Industry, RES service providers	>=4	3	4	1	8
Organisation of Workshops with External Exploitation Partner / Venture Capitals	Industry	>=2	0	0	0	0
Presentations to Potential Customers / Stakeholders	Industry	>=10	3	6	3	12
Organisation of Workshop, Conference, Special Session	Research community	>=3	2	3	6	11
Journal Publications	Research community	>=9	2	4	4 (+1 in peer-review)	11
Conference Publications	Research community	>=10	0	0	1	1
Dissemination outside EU	Industry, RES service providers	>=3	0	0	2	2
Participation in Clusters	Members of EU Projects in process industry	>=10	1	3	1	5
Liaisons with National Initiatives	Manufacturers, Policy Makers, Integrators of Industrial Solutions	>=10	1	1	1	3

## b. Events

In the 44 months of TheGreefa project, 35 events have been performed where partners presented the project. The details are presented in Table 5 below. 8 events were organised in the 1<sup>st</sup> reporting period (M1-M18), 18 within the 2<sup>nd</sup> reporting period (M19-M32) and 9 events have been performed in the last year of the project (M33-M44). There are also 2 events taking place in June and July 2024. Initially the Spanish workshop was planned for the 30<sup>th</sup> of May 2024, however it was finally organised on the 10<sup>th</sup> of June.

All the event performed since the beginning of the project are listed in Table 5 below. Their references to the defined KPI are given in Table 4 for each of the reporting periods. Here, also information is given, which event corresponds to which KPI based on the event's position in Table 5:

- **Showcase prototypes of Trade-Fairs:** Events no. 10, 17 and 27 (2RP). A miniature model of TheGreefa absorber was developed by WATERGY and was presented in Berlin. Another model was presented in event no. 31 (3RP).
- **Participation in Exhibitions:** Events no. 10, 17, 27 (2RP) and 31 (3RP).
- **Participation in Workshops:** Events no. 9 and 13 (2RP).
- **Participation in Conferences:** Events no. 1, 5, 6 (1RP), events no. 17, 22, 23, 26 (2RP) and event no. 29 (3RP).
- **Organisation of Workshops with External Exploitation Partner / Venture Capitals:** According to one of the conclusions from WP4, TheGreefa solution is not ready for market introduction by the end of the project. Therefore, such events were not organised. More research is needed to develop further the technology to reach TRL8-9.
- **Presentations to Potential Customers / Stakeholders:** STRANE's meetings no. 2, 3 and 4 (1RP) and no. 19, 20, 21 and UAL meeting no. 16 (2RP). Swiss workshop no. 28, Italian webinar no. 34 and the Final workshop no. 35 (3RP).
- **Organisation of Workshop, Conference, Special Session:** Events no. 7 and 8 (1RP), events no. 13, 14, 15 (2RP) and events no. 28, 30, 32, 33, 34 and 35 (3RP).
- **Dissemination outside EU:** Events no. 29 and 32 (3RP).
- **Participation in clusters:** There is one cluster created in 1RP and continued by the end of the project and beyond. However, in terms of events there were 5 events performed together with the cluster projects – events no. 8 (1RP), no. 9, 12, 13 (2RP) and no. 33 (3RP).
- **National workshops:** Events no. 14 and 36 (Spain), 10, 17 and 27 (Germany), 28 (Switzerland) and 34 (Italy).

For the performed actions the available verification means are added as an Appendix of this report.



**Table 5. List of done events where TheGreefa was presented.**

No.	Partner	Type of event	Event title	Date and location	Title of the contribution	Dissemination tool	Target audience
1	ZHAW	Conference	15. Sitzung der Innovationsgruppe Speicher / Wärmetauscher, energie-cluster.ch	21.10.2020 Online		Presentation	SME, researcher, students
2	STRANE	Meeting		17.03.2021 Online	TheGreefa Project	Presentation	SAVEOL New Energies
3	STRANE	Meeting		26.07.2021 Online	TheGreefa Project	Presentation	CTIFL (Centre technique interprofessionnel des fruits et légumes)
4	STRANE	Meeting		28.09.2021 Online	TheGreefa Project	Presentation	FNPHP (Fédération Nationale des Producteurs Horticoles et Pépinières)
5	IZNAB	Conference	Horizon of Innovations	25.11.2021 Warsaw, Poland		Brochure distribution, networking	Researchers, investors, SME, industries, authorities (local and national)
6	STRANE	Conference	Du Nord au Sud, actions concrètes de développement durable.	10.12.2021 Paris, France	TheGreefa Project	Presentation with round table with Q&A	Sustainable development students
7	UAL	Technical workshop	Team-meeting of the scientific research team Greenhouse Technology of the Wageningen University & Research	08.03.2022 Wageningen, The Netherlands	Works developed by the Greenhouse Technology Unit of the Rural Engineering Group of the University of Almería, Spain	Presentation	Scientists
8	IZNAB / ZHAW	Webinar	AREA ZERO 1 <sup>st</sup> webinar	24.03.2022 Online	TheGreefa – Innovative greenhouse system for heat and humidity control with water recovery in a single process	Presentation	All types of public

9	UAL	Workshop	AgroFossilFree's workshop for greenhouses	14.06.2022, Athens, Greece	TheGreefa Project	Presentation and panel discussion	Farmers, researchers, local authorities
10	WATERGY TUB	Exhibition	Berlin night of the science 2022	26.07.2022 Berlin, Germany	TheGreefa Project	Exhibition stand, individual presentations and discussion	Local researchers and research institutions, general public
11	WATERGY	Online presentation	Forum Building Technology DENA (German Energy Agency)	13.09.2022 Online	Dessiccant Systems	Presentation	German Energy Agency
12	IZNAB WATERGY ZHAW	Webinar	EUSEW 2022 - Online event organised within EUSEW Extended Programme by TheGreefa, AgroFossilFree and RES4LIVE projects	22.09.2022 Online	Together towards energy-efficient and defossilised agriculture	Projects' presentations, Slido polls and discussion panel	EU authorities, Local authorities, Researchers, SMEs, Industries
13	IZNAB	Workshop	AgroFossilFree's 2 <sup>nd</sup> Transnational Innovation Workshop	23.09.2022 Warsaw, Poland	TheGreefa Project	Brochure, networking, discussion	Farmers, researchers
14	UAL	Workshop	Technical Conference of the Vice-rectorate for Research and Innovation of the University of Almería and FRUIT LOGISTIC	28.09.2022 Almería, Spain	Technologies in Mediterranean greenhouses for sustainable agriculture	Presentation	Farmers, researchers
15	UAL	Training	Online-Course for students of Engineering for Production systems and products in horticulture	24.10.2022 Angers, France	Technologies in Mediterranean greenhouses for a sustainable agriculture	Presentation	Last-year Master students in horticultural engineering of the Institute Agro Rennes-Angers
16	UAL	Meeting	Meeting about Growing Plants in Space-Feeding People on Earth Consulting on Space Agriculture and Controlled Environment Agriculture	04.11.2022 Online	Works developed by the Greenhouse Technology Unit of the Rural Engineering Research Group AGR-198	Presentation	President and Founder of SyNRGE, LLC
17	ZHAW WATERGY TUB	Conference & Exhibition	Zurich meets Berlin	04-05.11.2022 Berlin, Germany	TheGreefa Project	Stand, presentation, poster,	Researchers, authorities (local and

						brochures, oral speech	national), general public
18	UAL	Meeting	Meeting at the UAL-ANECOOP Foundation	01.12.2022 Almeria, Spain	Technologies in Mediterranean greenhouses for sustainable agriculture	Presentation	Student of the University of Evora (Portugal)
19	STRANE	Meeting		2022, Phone	TheGreefa Project	Presentation	Les Jardins de Rabelais
20	STRANE	Meeting		2022, Phone	TheGreefa Project	Presentation	CTIFL
21	STRANE	Meeting		2022, Phone	TheGreefa Project	Presentation	FNPHP Fédération Nationale des Producteurs Horticoles et Pépinières
22	IZNAB	Conference	Horizon Europe Information Day 2023	12.01.2023 Warsaw, Poland	TheGreefa Project	Stand, brochures, networking	Researchers, industries, authorities (local and national)
23	ZHAW	Conference	Energy Research Talks Disentis 2023	25-27.01.2023 Disentis, Switzerland	Thermochemical networks – an innovative energy supply and storage solution for fluctuating, regenerative generator systems	Oral presentation	Researchers, students
24	ZHAW	Colloquium	Lunch Colloquium of the Department Mechanical Engineering, Energy Technology and Aviation	19.04.2023 Winterthur, Switzerland	Activities in the field of thermal networks	Presentation to a large audience	Researchers, Students, staff of the university
25	UAL	Meeting	Meeting at the UAL-ANECOOP Foundation	18.04.2023 Almeria, Spain	Works developed by the Greenhouse Technology Unit of the Rural Engineering Research Group AGR-198	Presentation	Researchers of the University of Gävle (Sweden)

26	WATERGY	Congress	Congress of the International Academy for Bath, Sport and Leisure Buildings in Germany e. V.	09.05.2023 Bremen, Germany	New ways for energy management in pool construction with sorption technology	Conference presentation	Engineers, Building Technology
27	WATERGY TUB	Exhibition	Berlin night of the science 2023	17.06.2023 Berlin, Germany	TheGreefa Project	Stand, individual presentations and discussion	Local researchers and research institutions, general public
28	ZHAW	Workshop	Swiss workshop of TheGreefa project	13.09.2023 Winterthur, Switzerland	Thermochemical fluids in agriculture / greenhouses	Presentations, Posters, Brochures, Swiss demonstrator visit	Agronomists, energy providers, investors
29	INRGREF	Conference	SUSTAINABLE MANAGEMENT OF ECOSYSTEMS FOR AGROECOLOGICAL TRANSITION AND FOOD SECURITY 20 <sup>th</sup> INRGREF International Scientific Days	10-11.10.2023 Tunis, Tunisia	Exploring the Water-Energy Nexus: First results of a greenhouse climate control based on an innovative absorption process	Poster	Researchers, industries, authorities (local and national)
30	UAL	Training	Online-Course for students of Engineering for Production systems and products in horticulture	06.11.2023 Angers, France	Technologies in Mediterranean greenhouses for a sustainable agriculture	Presentation	Last-year Master students in horticultural engineering of the Institute Agro Rennes-Angers
31	ZHAW SFERA WATERGY	Exhibition	ECOMONDO The Green Technology Expo	07-09.11.2023 Rimini, Italy	TheGreefa – Thermochemical Fluids in Greenhouse Farming	Stand, Posters, Pitching speech	General public, Researchers, Industry
32	UAL	Training	Online-Training course Protected agriculture, climate change adaptation	14.02.2024 Cundinamarca, Colombia	Physiological and Technical Interactions of Greenhouses in Protected Agriculture		Scientists and Technicians of Corporación Colombiana de Investigación Agropecuaria (AGROSAVIA)

33	IZNAB ZHAW STRANE	Workshop	Joint webinar “The Farming Future: Opportunities and Challenges in the Agricultural Energy Transition”	14.03.2024 Online	TheGreefa – Thermochemical Fluids in Greenhouse Farming	Presentation	General public
34	SFERA HYPERBOREA STRANE ZHAW MAS	Workshop	Italian webinar of TheGreefa project	23.05.2024 Online	TheGreefa: environmentally friendly air conditioning	Presentations	Farmers, Stakeholders
35	ALL	Workshop	Final workshop of TheGreefa project	28.05.2024 Hameln, Germany	TheGreefa workshop on Thermochemical systems	Presentations, Brochures, Networking	Researchers of ISFH
36	UAL	Workshop	Spanish workshop of TheGreefa project	10.06.2024 Almeria, Spain	Thermochemical Fluids in Greenhouse Farming: New technologies based on thermochemical fluids and project results	Presentation	Agronomists, researchers and PhD Students
37	LUH WATERGY TUB	Workshop / Conference	EG-ICE International Workshop on Intelligent Computing in Engineering 2024	04.07.2024 Vigo, Spain	Performance Modelling of Discharging Process in a Thermochemical Fluid System Using Machine Learning Approaches	Conference publication	Researchers

### c. Print media

#### i. Press-releases

Other dissemination activities include reports on the project’s results (Open Access) and periodic Press Releases. It means the publication of articles about the results in the professional press, magazines in printed form, but also online on websites and social media. In Table 6, there is a list of the 12 preformed press releases in different forms, as well as one additional interview which will be published in Horizon Magazine after the end of the project.

Table 6. List of press-releases

Partner	Type of press release	Title	Where	Date	Reference
ZHAW	Post on website	TheGreefa H2020 project	ZHAW Website	-	<a href="https://www.zhaw.ch/en/research/research-database/project-detailview/projektid/3976/">https://www.zhaw.ch/en/research/research-database/project-detailview/projektid/3976/</a>
UAL	UAL Magazine	The University of Almeria obtains a new European Project in the field of Greenhouse Climate Control	EDC UAL Bulletin N°50	-	<a href="https://thegreefa.eu/wp-content/uploads/2022/03/BULLETIN-JULY.pdf">https://thegreefa.eu/wp-content/uploads/2022/03/BULLETIN-JULY.pdf</a>
UAL	FH Almeria, newspaper for the farming sector	El proyecto europeo TheGreefa / TheGreefa European project	FH Almeria	December 2020	<a href="https://www.fhalmeria.com/noticia-30280-25/edicion-especial-anuario-agricola-2020">https://www.fhalmeria.com/noticia-30280-25/edicion-especial-anuario-agricola-2020</a>
UAL	Agricultura 2000, newspaper for farmers	El proyecto europeo TheGreefa / TheGreefa European project	Agricultura 2000	January 2021	<a href="#">Offline</a>
STRANE	Strane's website	Green Indoor Agriculture	Worldwide web	Q4/2021	<a href="https://strane-innovation.com/fr-accueil/strane-lab">https://strane-innovation.com/fr-accueil/strane-lab</a>
STRANE	Strane's social media account	TheGreefa H2020 project	LinkedIn	Q4/2021	
WATERGY	Book chapters	Unlocking the potential of protected agriculture in the GCC countries	FAO publication	2021/22	<a href="https://doi.org/10.4060/cb4070en">https://doi.org/10.4060/cb4070en</a>
UAL	Publication online	Ensayo 1. Thermochemical fluids in greenhouse farming THEGREEFA	Memoria de actividades 2020-2021 Fundación Universidad de Almería - Anecoop	March 2022	<a href="https://online.fliphtml5.com/lxlas/evtl/#p=23">https://online.fliphtml5.com/lxlas/evtl/#p=23</a>
ZHAW	Publication online	Storing summer heat in a salt solution	ZHAW website	16.12.2022	<a href="https://impact.zhaw.ch/en/article/storing-summer-heat-in-a-salt-solution">https://impact.zhaw.ch/en/article/storing-summer-heat-in-a-salt-solution</a>
ZHAW	ZHAW Magazine	Ensayo 1. Thermochemical fluids in greenhouse farming THEGREEFA	ZHAW website / Hardcopy Impact	Q1/2023	Interview released
UAL	Publication online	Ensayo 1. Thermochemical fluids in greenhouse farming THEGREEFA	Memoria de actividades 2021-2022 Fundación Universidad de Almería - Anecoop	March 2023	<a href="https://online.fliphtml5.com/lxlas/awhk/#p=29">https://online.fliphtml5.com/lxlas/awhk/#p=29</a>

<b>ZHAW MEYER</b>	Magazine	Saltlösning nyckel i nytt energisystem för växthus	Viola	No 7/2023	<a href="https://www.elisabeth-forslund.com/milj%C3%B6?pgid=ktwue0po-e934c732-ad45-4f06-b138-02f354c6967f">https://www.elisabeth-forslund.com/milj%C3%B6?pgid=ktwue0po-e934c732-ad45-4f06-b138-02f354c6967f</a>
<b>ZHAW</b>	Online Magazine	An interview with TheGreefa coordinator Serena Danesi	Horizon Magazine	June/July 2024	<a href="https://projects.research-and-innovation.ec.europa.eu/en/horizon-magazine">https://projects.research-and-innovation.ec.europa.eu/en/horizon-magazine</a>

## ii. Scientific publications

There are 6 scientific papers published within the 44 months of TheGreefa project. 3 papers were published in the last reporting period. One publication is submitted and is in peer-review process at the end of the project. Another paper is still in preparation and will be submitted after the end of the project. There is also a conference paper to be published during EG-ICE International Workshop on Intelligent Computing in Engineering 2024 on the 4<sup>th</sup> of July. So, 3 more papers will be published after the end TheGreefa. In total it gives 9 scientific papers developed by TheGreefa partners. The details are presented in Table 7 below.

**Table 7. List of scientific publications.**

Partner	D.O.I.	Title	Publisher	Scientific Journal	Date	Open access	URL
WATERGY	<a href="https://doi.org/10.4060/cb4070en">https://doi.org/10.4060/cb4070en</a>	Unlocking the potential of protected agriculture in the GCC countries	FAO	FAO report	2021/22	YES	<a href="https://www.fao.org/documents/card/fr/c/CB4070EN/">https://www.fao.org/documents/card/fr/c/CB4070EN/</a>
INRGREF WATERGY	<a href="https://doi.org/10.3390/agronomy12030626">https://doi.org/10.3390/agronomy12030626</a>	Comprehensive review on climate control and cooling systems in greenhouses under hot and arid conditions	MDPI	Agronomy Basel	03.03.2022	YES	<a href="https://www.mdpi.com/2073-4395/12/3/626">https://www.mdpi.com/2073-4395/12/3/626</a>
INRGREF	<a href="https://doi.org/10.3390/horticulturae8121102">https://doi.org/10.3390/horticulturae8121102</a>	Opportunities for Implementing Closed Greenhouse Systems in Arid Climate Conditions	MDPI	Horticulturae	24.11.2022	YES	<a href="https://www.mdpi.com/2311-7524/8/12/1102">https://www.mdpi.com/2311-7524/8/12/1102</a>
UAL	<a href="https://doi.org/10.1002/sd.2837">https://doi.org/10.1002/sd.2837</a>	Strategic evaluation of the sustainability of the Spanish primary sector within the framework of the circular economy	ERP Environment and John Wiley & Sons Ltd	Sustainable Development	27.11.2023	YES	<a href="https://onlinelibrary.wiley.com/doi/10.1002/sd.2837">https://onlinelibrary.wiley.com/doi/10.1002/sd.2837</a>

UAL	<a href="https://doi.org/10.21125/inted.2024.0891">https://doi.org/10.21125/inted.2024.0891</a>	Results of an awareness workshop on saving energy and material resources in a secondary classroom in Almeria (Spain)	18th International Technology, Education and Development Conference Valencia, Spain. 4-6 March, 2024	INTED 2024 - Conference Proceeding	04-06.03.2024	NO	<a href="https://library.iated.org/view/HONORE2024RES">https://library.iated.org/view/HONORE2024RES</a>
WATERGY TUB	<a href="https://doi.org/10.54021/seesv5n1-037">https://doi.org/10.54021/seesv5n1-037</a>	A computational fluid dynamics (CFD) modelling in a new design of closed greenhouse	Studies Publicações Ltda	Studies in Engineering and Exact Sciences Vol. 5 No. 1 (2024)	21.03.2024	YES	<a href="https://ojs.studiespublicacoes.com.br/ojs/index.php/sees/article/view/3314">https://ojs.studiespublicacoes.com.br/ojs/index.php/sees/article/view/3314</a>
TUB	<a href="https://doi.org/10.3390/xxxx">https://doi.org/10.3390/xxxx</a>	Analyzing the Impact of Roof Slope on Condensation and Humidity Distribution within Greenhouses in Sustainability	MDPI	Sustainability 2024, 16, x	In peer-review	YES	
WATERGY		Performance Assessment of Brine-Based Liquid-desiccant system used for greenhouse air conditioning	MDPI	Agronomy	In preparation	YES	
LUH WATERGY TUB		Performance Modelling of Discharging Process in a Thermochemical Fluid System Using Machine Learning Approaches	EG-ICE International Workshop on Intelligent Computing in Engineering 2024		04.07.2024	YES	<a href="https://3dgeinfoeg-ice.webs.uvigo.es/">https://3dgeinfoeg-ice.webs.uvigo.es/</a>



### iii. Technical publications

4 technical publications have been published by WATERGY and IZNAB. They do not have DOI and are not in scientific journals, therefore cannot be considered scientific. However, they are extensive articles in technical journals/magazines for topics focusing on water management, landscape, etc.

The last one, published by IZNAB, was a common paper with other AREA ZERO projects – AgroFossilFree, RES4LIVE and HyPERFarm – published in the journal *European Energy Innovation*.

**Table 8. List of technical publications.**

Partner	Title	Journal	Date	ISSN	Open access	URL
WATERGY	"Anpassung an den Klimawandel oder Reparatur der Landschaft?"   <i>"Adapting to climate change or repairing the landscape?"</i>	Regenwasser Management Special 2022	2022	ISSN 2750-5030 A 61029	Access through viewer	<a href="https://e.issuu.com/embed.html?d=regenwassermanagement-2022&amp;hideIssuuLogo=true&amp;u=ernst-und-sohn&amp;fbclid=IwAR3OnNMC2zpaDakEXn4m-Y2dU4LRE9UutKnoJPr7tx2pxFvGI67y2yQJCs">https://e.issuu.com/embed.html?d=regenwassermanagement-2022&amp;hideIssuuLogo=true&amp;u=ernst-und-sohn&amp;fbclid=IwAR3OnNMC2zpaDakEXn4m-Y2dU4LRE9UutKnoJPr7tx2pxFvGI67y2yQJCs</a>
WATERGY	Warten auf die CO <sub>2</sub> -Lösung ist zu bequem - Ein verbesserter Landschaftswasserhaushalt kann Dürre und Flut verhindern   <i>Waiting for the CO<sub>2</sub> solution is too convenient - Improved landscape water balance can prevent drought and floods</i>	FBR Spiegel, 3 2022, pp 14-18	2022	P-ISSN 1436-0632	Access through viewer	<a href="https://indd.adobe.com/view/7b28e668-1404-4c86-9582-76fe08154e43">https://indd.adobe.com/view/7b28e668-1404-4c86-9582-76fe08154e43</a>
WATERGY	Reparatur der Landschaft, Wasser zurückhalten, speichern und verdunsten   <i>Landscape repair, water retention, storage and evaporation</i>	Neue Landschaft 10 2022, pp 49-51	2022	ISSN 0548-2836	no	<a href="https://neuelandschaft.de/portale/archiv/ausgabe/nl-2022-10.html">https://neuelandschaft.de/portale/archiv/ausgabe/nl-2022-10.html</a>
IZNAB	The Green Deal: Paving the way to defossilise agriculture	European Energy Innovation, Summer 2023, Pages 8-10	June 2023		Access through viewer	<a href="https://www.europeanenergyinnovation.eu/OnlinePublication/Summer2023/index.html#p=8">https://www.europeanenergyinnovation.eu/OnlinePublication/Summer2023/index.html#p=8</a>

iv. KPI reference

There are 3 types of KPIs referring to the publications and developed documents:

- White papers:** In collaboration with the AgroFossilFree project, TheGreefa prepared a Policy Brief and recommendation document regarding *The use of thermochemical fluids for energy saving and storage in agriculture*. The document is available online: <https://www.agrofossilfree.eu/wp-content/uploads/2023/10/PB16.pdf>.



Figure 2. The Policy Brief prepared by TheGreefa.

- Journal publications:** There are now 10 publications in journals, 6 scientific and 4 technical papers. However, one of the technical publications and one scientific paper have restricted access. One more paper is in peer-review process and another one in preparation yet. In total it gives 12 publications developed in TheGreefa project.
- Conference publications:** There is 1 conference paper presented by UAL during the 18<sup>th</sup> International Technology, Education and Development Conference taking place in Valencia (Spain) on 4<sup>th</sup>-6<sup>th</sup> March 2024. The paper is published in the conference proceeding with restricted access. Another publication will be presented during EG-ICE International Workshop on Intelligent Computing in Engineering 2024 on the 4<sup>th</sup> of July 2024.

## 4. Dissemination tools

In the early stage of the project, TheGreefa logo and the set of dissemination materials have been developed. The brochure and poster are translated into different languages.

### a. Logo

The logo of TheGreefa project has been developed in M3 of the project and is used since then after being approved by all the Consortium members.



Figure 3. TheGreefa logo

### b. Brochure

TheGreefa brochure (Figure 4, Figure 5) has been developed. It is published on TheGreefa website in 2 forms – electronic specifically for the website to be read on-screen and using mobile devices, and in printable form (C-fold) useful for the partners in dissemination during events. The brochure was slightly updated visually and LUH's logo was added after they joined the consortium.

**TheGreeFa principles**

The reduction of the energy required for heating is reached in TheGreeFa recirculating the air inside the greenhouse avoiding the exchange with the external air. At the same time, the latent heat of the humid air is reconverted in sensible heat used for heating purpose.

In TheGreeFa greenhouse, it is not necessary to regulate the humidity opening the windows. The thermochemical fluid (TCF) removes the excess of humidity produced by the transpiration of the plants, so the thermal energy losses can strongly be reduced.

At the same time, the water vapour of the air (humidity) condenses in the absorption process releasing useful heat.

Energy and mass flow in a greenhouse without an active humidity control

Energy and mass flow in a greenhouse with TCF air conditioning

**Contact**  
Serena Danesi  
dane@zhaw.ch  
ZHAW

**Work Programme topic addressed:**  
LC-FNR-06-2020 Defossilising agriculture – solutions and pathways for fossil-energy-free farming

Project number: 101000801  
Duration: 10.2020-05.2024

Project cost: 4.6 million €  
EU funding: 4 million €

**PARTNERS**

zhaw School of Engineering  
ETP Institute of Energy Systems and Heat Engineering

watergy

MEYER ORCHIDEEN

SFERA AGRICOLA

IZNAB Sp. z o.o. "Innovative Intelligent Agriculture"

Strane Innovation

Hyperborea

MAS

Leibniz Universität Hannover

**Thermochemical Fluids in Greenhouse Farming**

TheGreeFa aims to reduce the overall energy consumption in the greenhouses and maximise at the same time the quote of renewable energy used for cooling, heating and humidity control and to water recovery in hot and dry climate zones.

Two different concepts for greenhouse systems will be developed and demonstrated in Continental and Mediterranean climate.

The EU Framework Programme for Research and Innovation

Visit our website  
www.thegreefa.eu  
https://twitter.com/TheGreefa  
https://www.linkedin.com/company/thegreefa/

Figure 4. TheGreefa brochure – Side A

**Why TheGreeFa**

Today, greenhouse horticulture is related to the **highest productivity of all common methods in agriculture**. The **energy consumption**, especially for heating purposes in Central Europe are still high, while in Southern Europe, **growing water shortages** will force to use **seawater desalination**, which may also cause a **quantum leap in energy demand**.

**Increase of energy efficiency**   **Large use of renewable energy**   **Cost savings**

TheGreeFa proposes for greenhouse farming three **innovative solutions** driven by renewable energies, that **recover the latent heat and water from air humidity**.

- Solution 1: Humidity control, heating and cooling in one system through a single process.
- Solution 2: Drying processes for herbs and foods at low temperature to preserve their quality and aroma.
- Solution 3: Water recovery by evapo-condensation strategies, including sorptive drying and evaporative cooling with saline water.

**Ways to achieve TheGreeFa's goals**

- Reduction of energy consumption**
  - ❖ Reduction of the amount of the **energy** required for the temperature control through the **recovery of the latent heat** of the humid air.
  - ❖ Reduction of the **heat losses** by **humidity control** through **absorption** instead by ventilation and air exchange with the outside.
  - ❖ **Water recovery** from air humidity, **without water purification and pumping**.
- Large use of renewable energy**
  - ❖ **Low temperature heat** is enough as the driving energy, e.g. solar heat or residual heat.
  - ❖ Integration of **free-loss thermal storages**, effective **usage of renewable energy** with seasonal shifting.
- Cost effectiveness**
  - ❖ Use of **mainly plastic component**, no thermal isolation is required.
  - ❖ The only rotating machines are standard pumps and air fans **limiting required maintenance**.
  - ❖ Thermochemical fluid (TCF) has an energy density up to 10 times higher than water, **reducing the volume required for storages**.

**Project's structure**

The work in TheGreeFa has been broken down into **five work packages** to achieve the overall project goals within the foreseen time frame.

**WP1** In **WP1**, the **concept is before tested and optimised in prototype** before the installation in demonstrators will be explored.

In **WP2**, the **concept is modelled in a software environment** in order to analyse different operation and control modes as well as for the integration of different renewable energy sources.

**WP3** In **WP3**, **case studies are carried out**. They are **providing data for the modelling** of TheGreeFa concept as whole systems (WP2) as well as they **produce data for the potential assessment** (WP3) of TheGreeFa.

**WP4** disseminates the **result of TheGreeFa**, **gaining stakeholders** and **preparing the future exploitation** on the market.

**WP5** **builds the framework and management** infrastructure to achieve goals in the envisage time frame. It monitors all activities, resources and risks to ensure smooth implementation.

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Figure 5. TheGreefa brochure – Side B

Besides TheGreefa brochure, the AREA ZERO brochure (Figure 16 and Figure 17) was developed by TheGreefa too. Together with the cluster poster developed by AgroFossilFree project and the AREA ZERO logo developed by RES4LIVE project, it was used during different project events where the AREA ZERO was disseminated by TheGreefa.

### c. Video

The promotional video has been developed as an animation explaining the project's concept, the developed solutions, expected impacts and what problem TheGreefa want to solve. The video has been published in January 2023 on [the project's YouTube channel](#) and is accessible also through TheGreefa website and social media. The video is in English with available subtitles but subtitles in all the project partners' languages are added too. By the end of the project the video has 208 views.

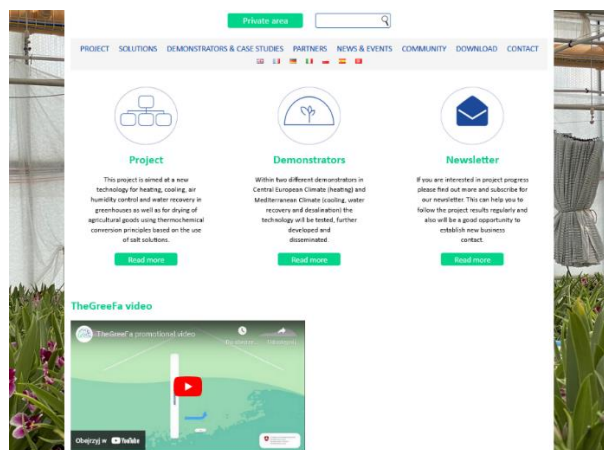


Figure 6. TheGreefa video on the home page of the project website.

Soon after the end of the project, the training presentations will be recorded and published in TheGreefa YouTube channel and TheGreefa website.

**d. Poster**

The TheGreefa poster has been designed and is presented in Figure 7 below. In the 2<sup>nd</sup> reporting period, the poster was redesigned, and the new version is presented in Figure 8. The poster was used during on-site workshops organized by TheGreefa.

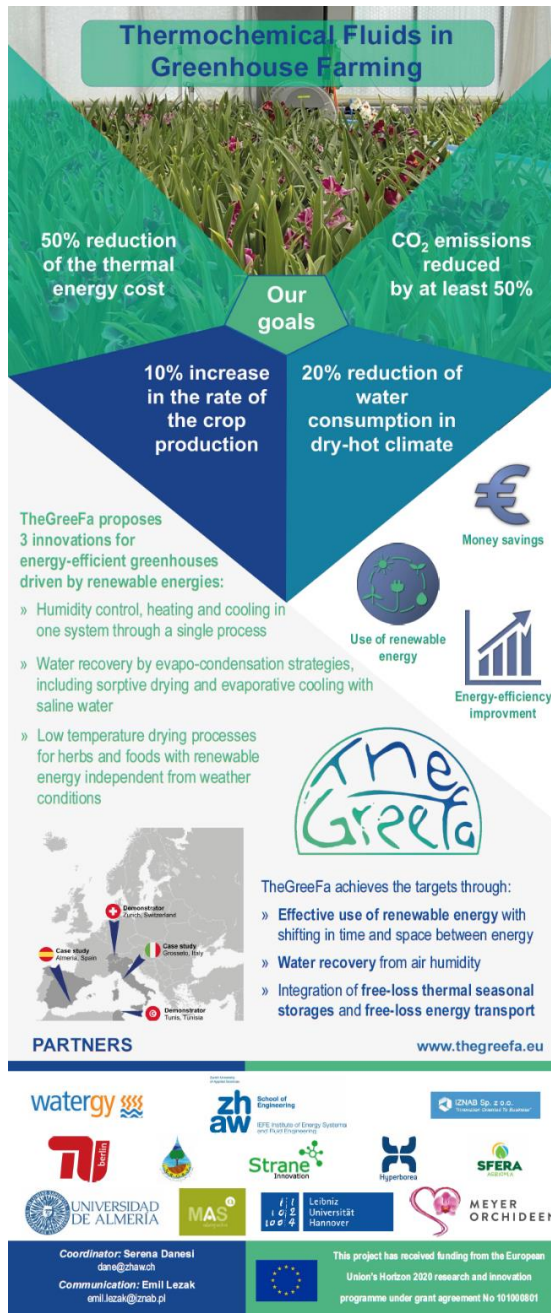


Figure 7. TheGreefa roll-up poster (85x200 cm).



Figure 8. New design of TheGreefa poster.

## e. Social media

The appearance of the project on social media is supposed to enhance the network structure and interest of external stakeholders. In many cases, the official business site is done through social networks. The impact of such action can bring about more worldwide recognition.

### i. LinkedIn

IZNAB created a professional page on the LinkedIn platform called *TheGreefa – Thermochemical Fluids in Greenhouse Farming*. The link for this page is <https://www.linkedin.com/company/thegreefa/>.

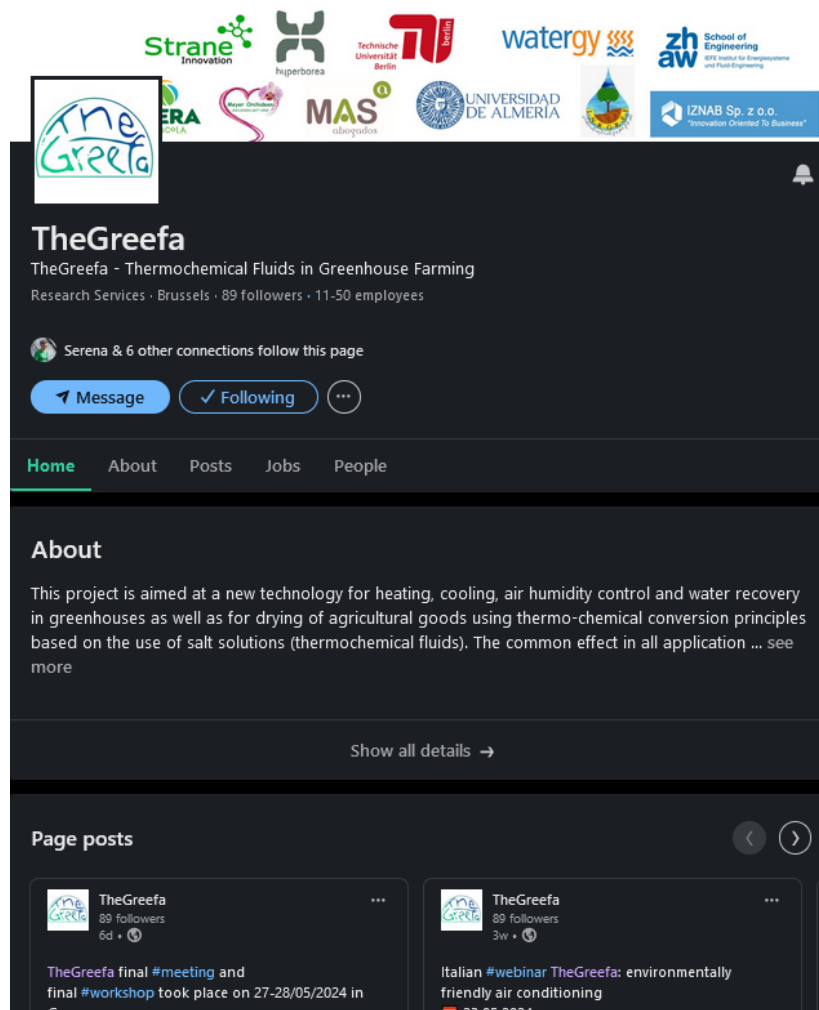


Figure 9. Official TheGreefa profile in LinkedIn.

Since creation of the LinkedIn page, TheGreefa had 705 visitors and generated 6 242 impressions, the most in the last year. In M32, there was 401 visitors and 4 104 impressions. Finally, there are 89 followers on TheGreefa's LinkedIn page. Based on the sector they represent, most of them are from higher education and research sectors. The farming sector and environmental services represent the 2<sup>nd</sup> and 3<sup>rd</sup> group in term of the number of followers.

## ii. X

Other social network used for market and promotion purposes is X (Twitter). The official X TheGreefa account can be found under this link <https://x.com/TheGreefa>. To tweet with reference to TheGreefa must be used @TheGreefa.

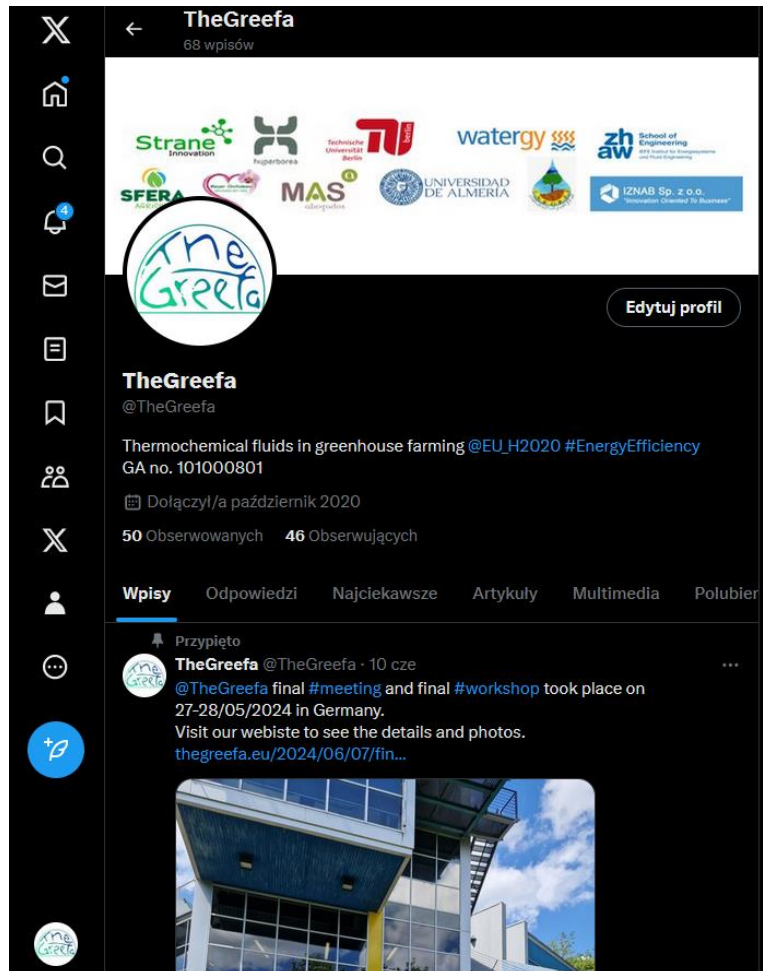


Figure 10. Official TheGreefa profile in x.com.

By the end of the project, there are 46 followers on TheGreefa's page. By the end of May 2023, there were around 8,000 impressions on TheGreefa's page. The impressions are times the X platform users are served a Tweet in their timeline or search results.

### f. Website

The project website containing all public material, such as public deliverables or publishable summaries of confidential reports, brochures, posters, newsletters, partner presentations, newspapers and events has been designed and implemented under the address [www.thegreefa.eu](http://www.thegreefa.eu). The website is available in English, Spanish, Polish, Italian, Arabic and French.

The header section includes TheGreefa official logo, the name of the project, the member area section and the navigation panel. By clicking on the logo, the user will go back to the homepage of the website. The navigation panel allows to move around the website and find specific information.

In the footnote section, Social Media links, contact information and Grant Agreement Info are included, where the EU emblem is placed too. In Figure 11, a screenshot from the homepage of TheGreefa is shown.

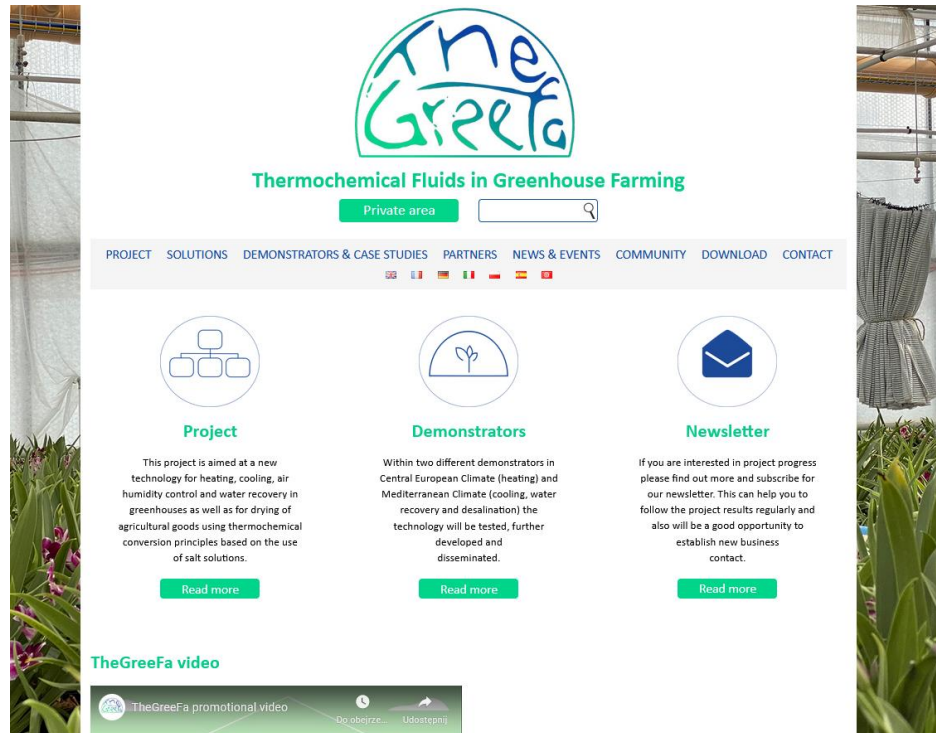


Figure 11. Homepage of the project website.

#### i. Structure of the website

1. **Home** – title page includes a big logo of the project and title. It briefly presents information about the project, demonstrators, results and impacts.
2. **Project** – Includes information about the Grant Agreement, Work Programme and specifies its main objectives and advances. Here, the user can know the project concept and objectives.
3. **Solutions** – presents innovative solutions developed within the projects. The user can go further into each solution to know more details and see photos or pictures.
4. **Demonstrators & Case Studies** – shows 2 case studies and 2 demonstrators of the project together with an EU map where all 4 objects' locations are marked. The user can go further into each demonstrator/case study to know more details and see photos or pictures.
5. **Partners** – in this section all partners of the consortium are presented and the projects being members of the AREA ZERO cluster together with TheGreefa.
6. **News & Events** – in the section posts about the project results, planned and performed dissemination activities are published.



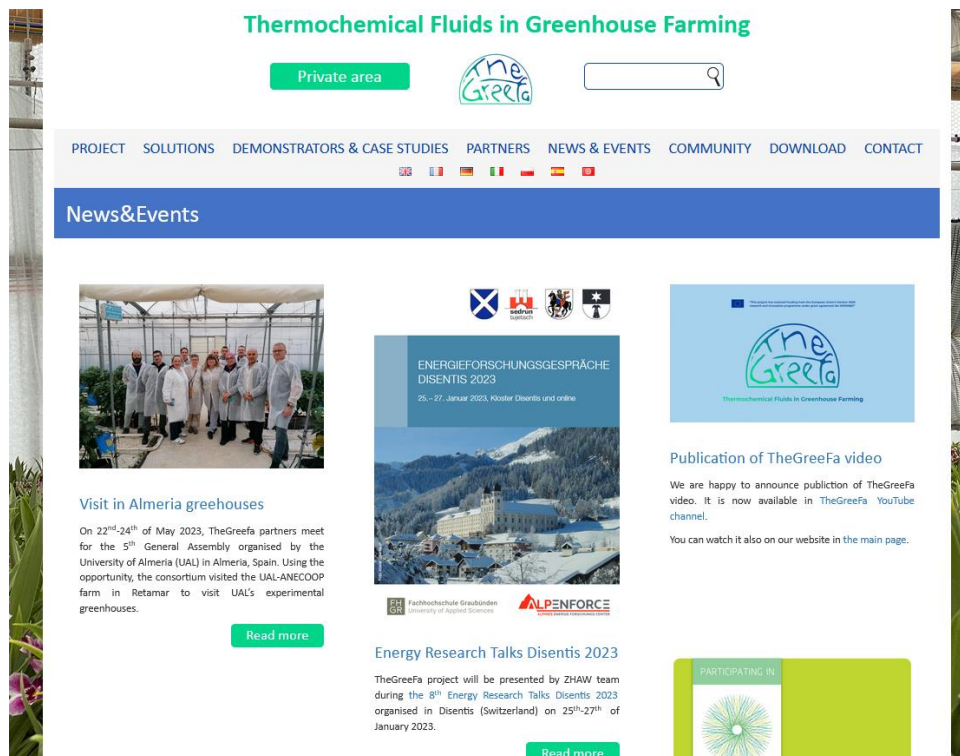


Figure 12. News section of TheGreefa website.

7. **Community** – gives a possibility for the visitors of the website to register to the group of followers of the project, being later informed about the project’s progress, events, etc.
8. **Downloads** – includes references to open access repositories where the project’s dissemination materials, scientific publications and public deliverables are uploaded but are also accessible directly in this section.
9. **Contact** – includes a formular to where website users can contact the consortium and ask questions.

ii. Website statistics

On the website we have turned on the Google Analytics toolkit which allows to analyze the statistics. From July 2021 to the end of May 2024, TheGreefa website had 2 891 visitors, where 2 815 were new visits. Most of the views are from Tunisia (667) and USA (426). Therefore, the most viewed are pages with Arabic and English translations. They are followed by countries like Germany (234), Switzerland (216) and Spain (182) creating the Top 5.

**g. Practice abstracts**

In 2022 TheGreefa was asked to produce a series of short practice abstracts about the project and its results to be published on [the EIP-AGRI website](#). By the end of May 2024, TheGreefa delivered 30 practice abstracts in total. 10 was delivered in the 2<sup>nd</sup> reporting period and 20 in the 3<sup>rd</sup> reporting period. For now only the first 10 abstracts are translated and available in TheGreefa website to be downloaded as PDFs. It is planned to translate all the remaining abstracts and soon publish them in TheGreefa website too in the [Download section](#).

**Thermochemical Fluids in Greenhouse Farming**

Private area

PROJECT SOLUTIONS DEMONSTRATORS & CASE STUDIES PARTNERS NEWS & EVENTS COMMUNITY DOWNLOAD CONTACT

Download

TheGreeFa communities in open access repositories

Practice abstracts			Publications	Dissemination materials
No.	Title	Language	Download	
PA1	Influence of humidity on the quality of the crops	English	PDF	
PA2	Methods to control the humidity in greenhouse farming	English	PDF	
PA3	Use of crop's transpiration for heating	English	PDF	
PA4	Water recovery from humidity of the air	English	PDF	
PA5	Greenhouse farming in hot and dry climate regions using closed environments	English	PDF	
PA6	Tunnel greenhouses with increased surface	English	PDF	
PA7	Taking advantage of natural resources efficiently in greenhouses	English	PDF	
PA8	Absorption-based drying systems for food and other goods	English	PDF	
PA9	Multi-sector technologies	English	PDF	
PA10	Greenhouse modelling	English	PDF	

**Figure 13. The 1<sup>st</sup> batch of the practice abstracts available on TheGreefa website.**

Below, the list of the abstracts and their titles are presented:

1. [PA1 - Humidity on the quality of the crops](#)
2. [PA2 - Methods to control the humidity in greenhouse farming](#)
3. [PA3 - Use of crop's transpiration for heating](#)
4. [PA4 - Water recovery from humanity of the air](#)
5. [PA5 - Greenhouse farming in hot and dry climate regions using closed environments](#)
6. [PA6 - Tunnel greenhouses with increased surface](#)
7. [PA7 - Taking advantage of natural resources efficiently in greenhouses](#)
8. [PA8 - Absorption-based drying systems for food and other goods](#)
9. [PA9 - Multi-sector technologies](#)
10. [PA10 - Modelling of thermochemical systems](#)
11. PA11 - Desiccant characterisations
12. PA12 - Improvement of the economic and competitiveness in greenhouses
13. PA13 - Energy saving in hot and dry climate regions
14. PA14 - Market potential
15. PA15 - Environmental impact
16. PA16 - Economic analysis
17. PA17 - Obstacles / barriers to commercialisation
18. PA18 - Case studies – Greenhouses in Spain and Italy
19. PA19 - Case study: greenhouse of Sfera

20. PA20 - Stakeholder mapping
21. PA21 - Thermochemical fluid as support of mechanical cooling
22. PA22 - First Results of Liquid-Desiccant use for Climate Control in Tunisian Greenhouses: A Tunisian Case Study
23. PA23 - Modelling and simulation for absorber system
24. PA24 - A project aligned with the SDGS
25. PA25 - Use of 3D printer for absorber constructions
26. PA26 - Evolution of the design for the absorber
27. PA27 - Impurities in thermochemical fluids
28. PA28 - Tomato Production in Closed Greenhouses with Liquid Desiccant Climate Control Systems -Tunisian case study-
29. PA29 - Practice innovation meets EU environment standards
30. PA30 - Possibilities and requirements of the use of thermochemical fluids in greenhouses climate control

## 5. Cluster engagements & Networking

To enhance the business opportunities 'lessons-learned' concept has been applied by clustering with other EU-funded projects. This is meant to learn from other projects and bring about constructive criticism and corrections to improve the project's technical, practical and communication aspect. The collaboration has been established between five projects in topics of FNR-06 A and B, LC-SC3-ES-3-2018/2020 and LC-SC3-RES-28-2018/2020. The cluster was named AREA ZERO – Alliance for Renewable Energy in Agriculture and Zero Fossil Energy.

The projects being the creators of the AREA ZERO cluster are shortly presented below.



**TheGreefa** – Thermochemical Fluids in Greenhouse Farming (GA 101000801)

<https://thegreefa.eu/>



**AgroFossilFree** – Strategies and technologies to achieve a European Fossil-energy-free agriculture (GA 101000496)

<https://www.agrofossilfree.eu/>



**HyPERFarm** – Hydrogen and Photovoltaic Electrification on Farm (GA 101000828)

<https://hyperfarm.eu/>



**RES4LIVE** – Energy Smart Livestock Farming towards Zero Fossil Fuel Consumption (GA 101000785)

<https://res4live.eu/>



**Renaissance** – RENewAble Integration and SuStainAbility iN energy CommunitiEs (GA 824342)

<https://www.renaissance-h2020.eu/>



**AgroBioHeat** – Promoting the penetration of agrobiomass heating in European rural areas (GA 818369)

<https://agrobioheat.eu/>

In June 2022 AgroBioHeat and in November 2022 Renaissance projects have been completed. Then only 4 ongoing projects were involved in the alliance.

In June 2023 AgroFossilFree project has finished and from that time AREA ZERO was looking for new potential projects to join.

In March 2024, 3 new projects joined the cluster – [REGACE](#), [PV4Plants](#) and [Symbiosyst](#).



**REGACE** – Crop Responsive Greenhouse Agrivoltaics System with CO2 Enrichment for Higher Yields (GA 101096056)

<https://regaceproject.com/>



**PV4Plants** – AgriPV system with climate, water and light spectrum control for safe, healthier and improved crops production (GA 101096409)

<https://www.pv4plants.eu/>



**Symbiosyst** – Create a Symbiosis where PV and agriculture can have a mutually beneficial relationship (GA 101096352)

<https://www.symbiosyst.eu/>

After the end of May 2024, there are left 5 active projects in the cluster – 2 which will also finish soon (HyPERFarm and RES4LIVE) and 3 young projects presented above. There are talks with new projects to join and inherit the AREA ZERO cluster.



Figure 14. AREA ZERO logo

In May 2021, TheGreefa was invited to take part in AgroFossilFree GA meeting (online) and give short project presentation. TheGreefa coordinator, Serena Danesi took part in the event and presented the project.

TheGreeFa (IZNAB, ZHAW, WATERGY) has co-organised 3 online events as the cluster and participated in 2 physical events being invited by the AgroFossilFree project (UAL, IZNAB). Also, a common application was prepared again by all the active projects for the EUSEW 2023 Policy Conference and Energy Fair, however, in this year's edition, the application was not successful.

IZNAB created the website of the AREA ZERO [www.areazerocluster.eu](http://www.areazerocluster.eu). All the active projects have an editor access to publish posts in the news section.



Figure 15. AREA ZERO website.

The AREA ZERO poster and brochure (see 4.b) have been developed to be used during events disseminating the cluster. The poster creation has been done by AgriFossilFree, while the brochure has been done by TheGreefa (IZNAB).

### IMPACT

The solutions and actions provided by AREA ZERO are designed to bring both environmental, economic and social benefits.

#### ENVIRONMENT

- reduction of CO<sub>2</sub> emissions
- reduction of water consumption
- increase of biomass use

#### ECONOMY

- reduction of thermal energy consumption
- reduction of operational costs
- increase of crop production and ensure optimum animal productivity

#### SOCIETY & AWARENESS

- increase of awareness about energy and water consumption
- exchange of knowledge and experience
- creation of stakeholders' networks
- rural development and job creation

### MEMBERS

**AgroBioHeat** – Promoting modern, cost-effective and low emissions agrobiomass heating technologies for European rural areas (GA 818369)

agrobioheat.eu

**AgroFossilFree** – Strategies and technologies to achieve a European Fossil-Energy-Free agriculture (GA 101000496)

agrofossilfree.eu

**HyPERFarm** – Hydrogen and Photovoltaic Electrification on Farm (GA 101000828)

hyperfarm.eu

**Renaissance** – RENewAble Integration and SuStainAbility in energy Communities (GA 824342)

renaissance-h2020.eu

**RES4LIVE** – Energy Smart Livestock Farming towards Zero Fossil Fuel Consumption (GA 101000785)

res4live.eu

**TheGreeFa** – Thermochemical fluids in Greenhouse Farming (GA 101000801)

thegreefa.eu

areazerocluster.eu

#AreaZero

# AREA ZERO

Alliance for Renewable Energy in Agriculture and Zero Fossil Energy

Technologies, techniques or strategies towards lower emissions, cleaner energy sources, improved energy efficiency, and cost-effectiveness in the agricultural sector

Funded by the European Union

Figure 16. The AREAZERO brochure – Side A.

### CHALLENGES

AREA ZERO was created, so that innovative projects can work together to overcome current challenges in the areas of agriculture and fossil fuel use reduction.

**High energy consumption** in greenhouse horticulture, especially for heating purposes and livestock buildings.

**Water usage** in agriculture.

Agriculture's **dependence on fossil fuels** in both crops and livestock.

**High emissions** of greenhouse gases

Limited **valorization of biomass potential** from agricultural residues

### AREA ZERO ANSWERS TO THE CHALLENGES

The six EU projects propose different solutions that aim to help to fight with current challenges.

State-of-the-art technologies using agricultural biomass (crop residues and energy crops) can provide cost-effective and low emissions heat for applications in rural areas: greenhouses, municipal buildings, agro-industries, district heating networks and others.

The framework, where critical stakeholders can cooperate to evaluate and promote the currently available Fossil-Energy-Free Technologies and Strategies (FEFTS) in EU agriculture.

Inclusion of new innovative PV technologies, radically new crop production systems, stakeholder innovation workshops, and citizen-consumer acceptance, public perception analysis and farmer adoption studies.

The community-driven scalable and replicable approach, to implement new business models and technologies supporting clean production and shared distribution of energy in local communities.

Introducing market integrated, cost-effective and case-sensitive Renewable Energy Sources (RES) solutions, towards fossil-free livestock farming, to be demonstrated and evaluated in dairy, swine and poultry farms.

The innovative use of absorption processes in the greenhouse air-conditioning using the hygroscopic properties of fluid salt solution, providing multiple functions and services such as heating, cooling, de-/humidification within a single device and water recovery.

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Figure 17. The AREA ZERO brochure – Side B.

D4.4 Final report on dissemination and communication activities

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39 / 57

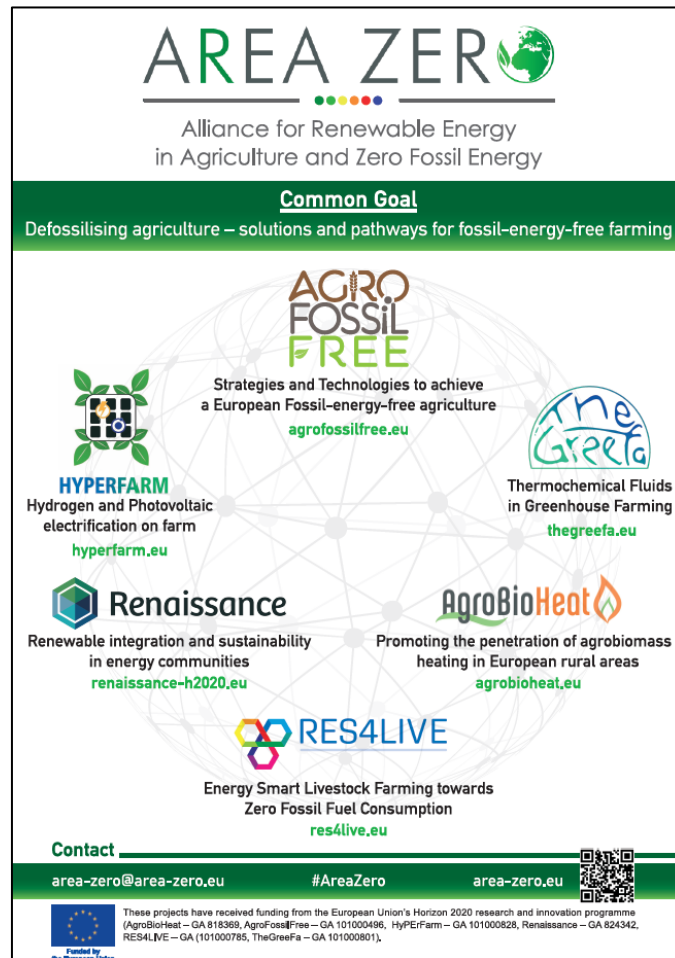


Figure 18. AREA ZERO poster

More detailed presentation of the clustering activities is included in the public report **D4.14 Comprehensive and reduced Report on the Clustering activities with other projects.**



## 6. Conclusions

This deliverable provides a report on the performed dissemination and communication activities of TheGreefa project.

During the 44 months of TheGreefa project, the results have been disseminated in different forms – physical and online events, website, social media, publication of online materials, scientific and technical papers.

A big part of the project has been performed during the COVID pandemic which caused the number of physical events participated in 2021 and a big part of 2022 was very limited. The events mostly took place in the form of online events where the use of tools like posters and brochures is impossible. However, the organisation of the online events gave valuable feedback and practice to make future events more interesting for the audience.

In total, TheGreefa was presented during 35 events such as workshops, webinars, conferences, meetings with stakeholders, etc. The 3 international workshops have been organised as jointly with other projects in online form. The national workshops have been organised in 4 countries. The final event was organised in Germany in connection with TheGreefa final meeting.

There were 10 scientific and technical publications released by the project partners and another one is in peer-review process.

Since the first months of the project TheGreefa website is in operation and is updated with new content when it is provided by the project partners.

A set of dissemination materials has been developed and was updated in case of such need.

The project set a collaboration with other EU-funded projects creating the AREA ZERO cluster and performed common events and joint dissemination activities – webinars, common dissemination materials, a publication and a policy recommendation. The cluster stays active after the end of TheGreefa projects as new members joined AREA ZERO.

In terms of the performance of the dissemination actions, most of the KPIs planned in the project from the very beginning have been reached. In some cases, the planned numbers occurred to be too high, so there was bigger activity performed in other aspects.

## 7. Appendix

### a. Verification means for the performed dissemination activities.

- Event no.1: *Conference 15. Sitzung der Innovationsgruppe Speicher / Wärmetauscher, energie-cluster.ch* on 21.10.2020 – Presentation of Thomas Bergmann (ZHAW) in the conference agenda.



Präsident: Daniel Menetrey 079 330 18 06, daniel.menetrey@energie-cluster.ch  
 Geschäftsleiter: Christoph Röthlisberger, 079 212 99 26, christoph.roethlisberger@energie-cluster.ch  
 TEVE Beat Nussbaumer, 031 370 14 01, beat.nussbaumer@energie-cluster.ch

Beilage 1 Programm 15. IG Speicher / Wärmetauscher		
Begrüssung	Christoph Röthlisberger, Geschäftsleiter Patrick Frauchiger, Technologievermittler	09:30
<b>Anwendung und Praxis</b>		
FEKA-Modul WRG aus Abwasser in der Praxis	Daniel Kalberer, FEKA-Energiesysteme AG Geschäftsleiter	09:45
gedämmtes Abdichtungssystem für Warmwasserspeicher	David Schiffmann, HSLU Projektleiter	
<b>Pause / Networking</b>		
<b>Forschung und Entwicklung</b>		
STOREF Speichersystem für industrielle Kälteprozesse	Roger-Pius Zimmermann, HSLU Projektleiter	11:15
Thermochemische Netze aktuelle Projekte	Thomas Bergmann, ZHAW Dozent für thermische Speichersysteme	
Gemeinsames Mittagessen		
		12:30

- Event no. 5: *Horizon of Innovations* on 25.11.2021 – Confirmation of registration and QR code for the participant.

[jakub.pluta@iznab.pl](mailto:jakub.pluta@iznab.pl)

**Od:** Horyzont Innowacji <notifications@syskonf.pl>  
**Wysłano:** środa, 24 listopada 2021 16:04  
**Do:** [jakub.pluta@iznab.pl](mailto:jakub.pluta@iznab.pl)  
**Temat:** Horyzont Innowacji - QR kod i informacje organizacyjne



#### Szanowni Państwo!

Już w najbliższy czwartek - 25 listopada br. - spotykamy się na wyjątkowej Konferencji NCBR: Horyzont Innowacji!

Wydarzenie będzie okazją do ważnej debaty o wyzwaniach dla gospodarki i sposobach wspierania innowacyjności. Porozmawiamy m.in. o ścieżkach finansowania innowacji na różnych etapach, trendach technologicznych i możliwościach wsparcia innowacyjnych pomysłów w nowej unijnej perspektywie finansowej. Wśród naszych prelegentów są m.in. futurologi, profesorowie, przedstawiciele biznesu, innowatorzy światowej sławy.

Zapraszamy!

1

Konferencja NCBR odbędzie się w Crowne Plaza Warsaw – The HUB, Rondo Daszyńskiego 2, Warszawa.

Rejestracja od godz. 8:00

Przy rejestracji należy okazać QR kod otrzymany w mailu. Prosimy o zapoznanie się z [aktualną klauzulą informacyjną](#).

Program oraz więcej informacji o konferencji: <https://www.gov.pl/web/konferencja-ncbr-horyzont-innowacji>



W przypadku problemów z wyświetlaniem kodu kliknij [tutaj](#).

POWERED BY  SYSKONF

- Event no. 7: *Team-meeting of the scientific research team Greenhouse Technology of the Wageningen University & Research on 08.03.2023* – Invitation for the meeting where F. Molina (UAL) is mentioned as one of the presenters.

Invitation teammeeting 8 March (physical meeting)

**Asunto:** Invitation teammeeting 8 March (physical meeting)

**De:** "Francisco Domínguez Silke" <silke@wur.nl>

**Fecha:** 03/03/2022, 14:32

**Para:** PS Cía T. hnologie <GG@technologie\_dis@wur.nl>, Francisco Domingo Molina Aiz <fmolina@ual.es>

Dear GT members,

I hereby invite you for our next teammeeting next week Tuesday 8 March 14-16 h in Radix. Please find the corresponding announcements enclosed.

We will have three presentations:

Francisco Molina Aiz (guest researcher): Works developed by the Greenhouse Technology Unit of the Rural Engineering Group of the University of Almería, Spain

Luuk Graamans: Vertical farming beyond leafy greens

Toon Tielen / Arjan Vroegop: Development of a parallel framework and its usage in different applications

I am looking forward meeting you all!

Silke

- Event no. 8: *AREA ZERO 1<sup>st</sup> webinar* on 24.03.2022 – Link to the recording of the event on the AREA ZERO YouTube channel

Recording link: <https://www.youtube.com/watch?v=3Map4FXQwul>

- Event no. 9 *AgroFossilFree's workshop for greenhouses* on 14.06.2022 – Mireille Nathalie Honoré (University of Almeria) in the event agenda and photo of her presenting the project.

#### **AGENDA 1st Transnational Innovation Workshop**

13:00 – 14:00 – Welcome Lunch

14:00 – 14:10 – Introduction – Thanos Balafoutis (CERTH)

14:10 – 14:20 – AgEnergy platform presentation – Michalis Kaminiaris (AGENSO) and Konstantinos Vaipoulos (CERTH)

14:20 – 14:35 – TheGreefa project – Thermochemical fluids in greenhouse farming – Mireille Nathalie Honoré (University of Almeria)

14:35 – 14:45 – Needs, barriers, and incentives of EU farmers on FEFTS adoption – Vaso Kanaki (AUA)

14:45 – 15:00 – Synopsis of the Regional Innovation Workshops results for Greenhouses – Michael Norremark (AU)

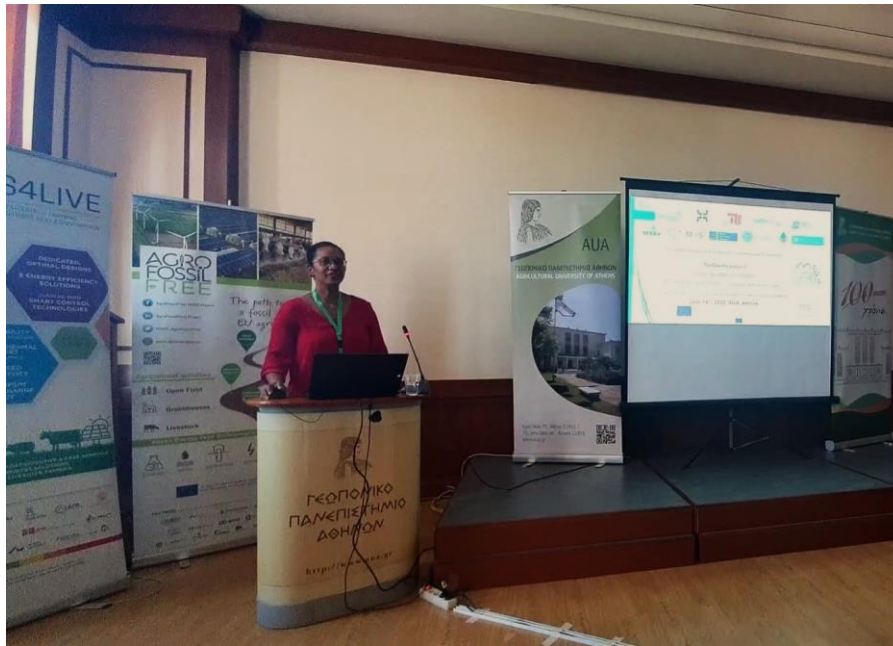
15:00 – 15:15 – Coffee break

15:15 – 16:15 – Discussion and collaboration

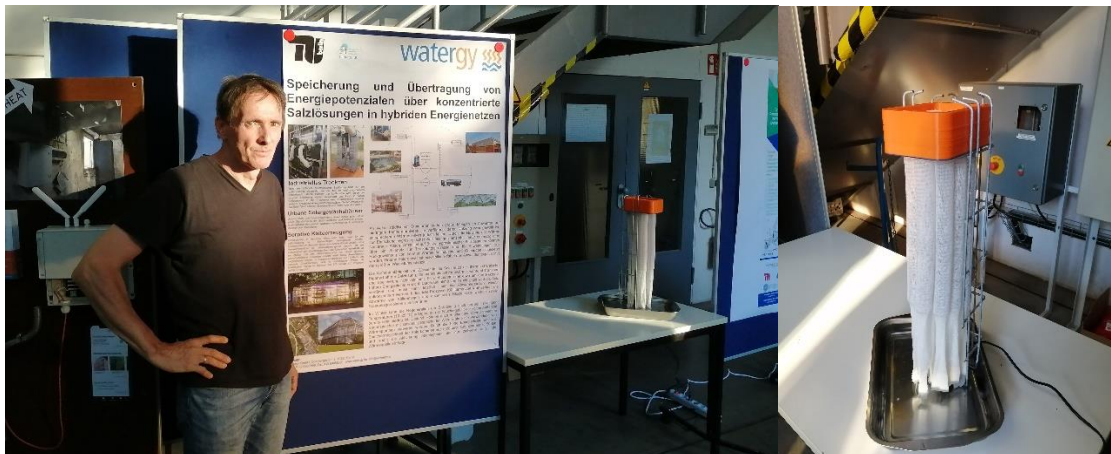
All participants will collaborate, exchange ideas, and express their opinion on several topics. Short 2-4 min pitching sessions by invited speakers will introduce the audience to each one of the three question categories.

16:15 – 17:00 – Visit to University greenhouse facilities – AUA team

Source: <https://www.agrofossilfree.eu/2022/06/01/first-transnational-innovation-workshop/>



- Event no. 10: *Berlin night of the science 2022* on 26.07.2022 – photo of Martin Buchholz at WATERGY/TUB stand where TheGreefa poster and small-scale absorber were presented.



- Event no. 11: *Forum Building Technology DENA (German Energy Agency)* on 13.09.2022 – First slides of Martin Buchholz's (WATERGY) presentation.

Dr.-Ing. Martin Buchholz, Watergy GmbH

Heizen, Kühlen, Feuchteregulierung und Luftreinigung durch flüssige Sorptionsmittel

DENA Dialog Forum "Wärme mit erneuerbaren Energien im Bestand"  
13. September 2022

Heizen, Kühlen, Feuchteregulierung und Luftreinigung durch flüssige Sorptionsmittel

DENA Dialog Forum "Wärme mit erneuerbaren Energien im Bestand" am 13. 09. 2022 Dr.-Ing. Martin Buchholz, Watergy GmbH

- Event no. 12: *EUSEW 2022 - Online event organised within EUSEW Extended Programme by TheGreeFa, AgroFossilFree and RES4LIVE projects* on 22.09.2022 – Link to the recording of the event on the AREA ZERO YouTube channel

Recording link: <https://www.youtube.com/watch?v=9qNUgml2pFY>

- Event no. 13: *AgroFossilFree's 2<sup>nd</sup> Transnational Innovation Workshop* on 23.09.2022 – Photos



- Event no. 14: *Technical Conference of the Vice-rectorate for Research and Innovation of the University of Almería and FRUIT LOGISTICA on 28.09.2022* – A post about the event on the UAL’s website (in Spanish)

<https://news.ual.es/sociedad/la-ual-recibe-fruit-logistica-para-mostrar-la-tecnologia-mas-puntera-aplicada-en-los-invernaderos/>

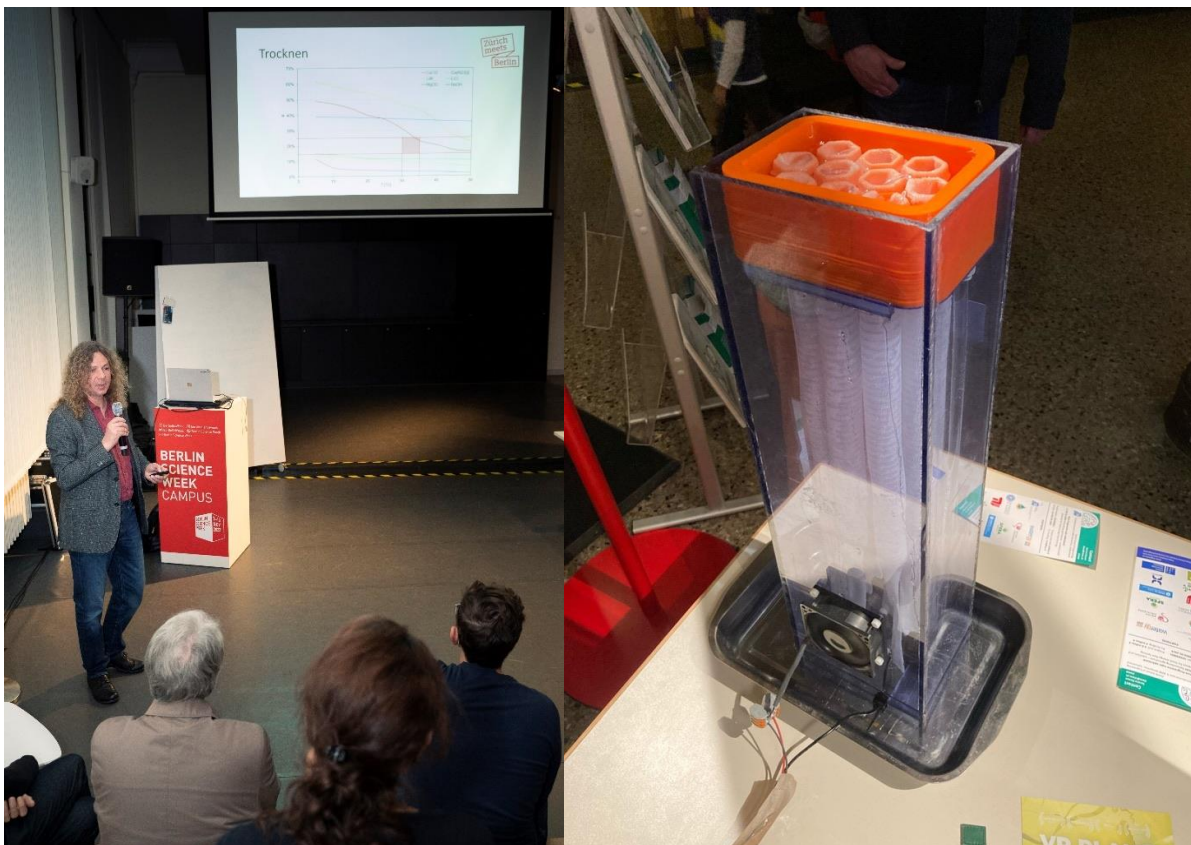
and photos of Francisco Molina and Diego Valera (UAL) taking part in the event.



- Event no. 16: *Meeting about Growing Plants in Space-Feeding People on Earth Consulting on Space Agriculture and Controlled Environment Agriculture on 04.11.2022* – Link to the post about the meeting (in Spanish).

Link: <https://www.aenverde.es/el-cientifico-norteamericano-gary-stutte-conoce-las-aportaciones-de-la-ual-en-agronomia/>

- Event no. 17: *Zurich meets Berlin* on 04-05.11.2022. Photos of presentations of Martin Buchholz (WATERGY) and Thomas Bergmann (ZHAW), and ZHAW's stand where TheGreefa and small-scale absorber were presented.





- Event no. 18: *Meeting at the UAL-ANECOOP Foundation* on 01.12.2022 – Link to the post about the meeting <https://www.fundacionualanecoop.com/visita-de-los-alumnos-de-la-universidad-de-evora-portugal/> and photos with Francisco Molina and the students of the University of Evora (Portugal).



- Event no. 22: *Horizon Europe Information Day 2023* on 12.01.2023 – TheGreefa brochures distributed in IZNAB’s stand.



- Event no. 23: *Energy Research Talks Disentis 2023* on 25-27.01.2023 – Link to the event page with the programme and where Thomas Bergmann’s (ZHAW) presentation about TheGreefa is available.

Link: <https://www.alpenforce.com/en/events/energy-research-talks-disentis-2023>

- Event no. 24: *Lunch Colloquium of the Department Mechanical Engineering, Energy Technology and Aviation* on 19.04.2023 – The meeting’s programme



## Einladung

zum Mittagskolloquium der Abteilung  
Maschinenbau, Energietechnik und Aviatik

**Wann:** Mittwoch, 19. April 2023

**Wo:** TP 406

### Programm:

11.45 – 12.15	Thomas Bergmann – IEFÉ "Aktivitäten im Bereich Thermische Netze "
12.15 – 12.45	Zwischenverpflegung
12.45 – 13.15	Ruth Häusler – ZAV „Objektive Erfassung menschlicher Leistung mit Eye-Tracking, psychophysologischen Parametern und Interaktionen“

Damit wir genügend Zwischenverpflegung bestellen können,  
biten wir um Anmeldung bis spätestens  
Donnerstag, 11. April 2023

- Event no. 25: *Meeting at the UAL-ANECOOP Foundation* on 18.04.2023 – Link to the post about the meeting  
<https://www.fundacionualanecoop.com/visita-de-los-profesores-de-la-universidad-de-gavle-suecia/>  
 and e-mail invitation for Almeria visit.

Visiting Almeria April 18th-19th about Climate control in greenhouses

**Asunto:** Visiting Almeria April 18th-19th about Climate control in greenhouses  
**De:** "f...@c... .net" <f...k@...g...net>  
**Fecha:** 11/04/2023, 7:12  
**Para:** f...ina@ue

Hello,

We are a research team from Sweden that has developed a technology that isolates greenhouses from cold and hot radiation using advanced airflows. In our test bed, we have achieved very good results regarding the cold season in the north.

We are now also conducting tests during the hot season and would like to see how climate control is managed from an energy system perspective within more tropical regions.

We would like to conduct short visits within greenhouses and companies in the Almeria area the 18th or 19th of April (Next week) to learn more about your energy usage.

We are particularly interested in climate control and in seeing how you have implemented energy-efficient solutions in greenhouses and how you are utilizing renewable energy sources.

I'm also open to attending any seminars or presentations you may have on the topic.

I would appreciate it if you could let me know if you have some contacts or suggestions that can guide us to some interesting meetings and short visits when we arrive in malaga on April 18th.

I look forward to hearing from you.

**Best regards,**  
 Patrick Olsson  
 University of Gavle (Sweden)  
 +46 70 314 13 55

- Event no. 26: *Congress of the International Academy for Bath, Sport and Leisure Buildings in Germany e. V.* on 09.05.2023 – Agenda of the event and Martin Buchholz's presentation marked in yellow.

INTERNATIONALE AKADEMIE FÜR BÄDER-, SPORT- UND FREIZEITBÄUEN E. V.		LAB	
<b>Kongress 08./09.05.2023</b> <b>„DIE BÄDERLANDSCHAFT VOR DER NEUAUSRICHTUNG? – BÄDERBAU IN ZEITEN KNAPPER ENERGIE- UND FINANZRESSOURCEN“</b>		<b>BERATUNGSSTELLE FÜR DEN KOMMUNALEN SPORTSTÄTTEN- UND BÄDERBAU</b> <b>RECHNUNGSSTELLE</b> Büro Wolff & Partner Benja Pfennig Hafenstraße 19 28225 Bremen Fon: 04 21 / 2 07 74 - 0 Fax: 04 21 / 2 07 74 - 26 E-Mail: info@lab-ev.de	
08.05.2023		11:45 Uhr	Referat Nr. 3: Wohler kommt die Energie fürs Bad? Analysen und Sichtweisen eines Energieversorgers Dipl.-Ing. Christian Arnold, EWE AG
17:00 Uhr	Abfahrt vom Atlantic Hotel zum Horner Bad	12:15 Uhr	Produktinformation II
17:15 – 18:45 Uhr	Besichtigung Horner Bad	12:25 Uhr	Mittagspause / Ausstellungsbesuch (Mineralwasser in Gebühr enthalten)
18:45 Uhr	Rückfahrt zum Restaurant Haus am Walde	13:30 Uhr	Referat Nr. 4: Gebäudeenergiegesetz quo vadis? - Perspektiven zur Nachweissführung von Nachhaltigkeit und CO <sub>2</sub> -Foot Print in Bädern Dipl.-Ing. Christian Bentler, BKX Ingenieure PartGmbH, Kalkenkirchen
19:00 Uhr	Empfang im Restaurant Haus am Walde	14:00 Uhr	Referat Nr. 5: Das Horner Bad als CO <sub>2</sub> -neutrales Bad Gedankenspiele zu alternativen Energiekonzepten Dipl.-Ing (FH) Jörg Steinweg, Wolff + Partner GmbH, Bremen
19:30 – 23:00 Uhr	Buffet/Essen und geselliger Abend	14:30 Uhr	Produktinformation III
09.05.2023		14:40 Uhr	Kaffeepause / Ausstellungsbesuch
09:00 Uhr	Entreffen der Gäste bei Kaffee und Tee Eröffnung der Kongressausstellung und kurze Vorstellung der Aussteller	15:10 Uhr	Referat Nr. 6: Neue Wege für Energieeffizienz im Bäderbau mit Sorptionstechnologie Dr. Martin Buchholz, Watery GmbH (in Kooperation mit Prof. Dr.-Ing. Philipp Geyer, Universität Hannover)
09:30 Uhr	Begrüßung und Information Jürgen Kannewischer, IAB-Präsident, Baden-Baden	15:40 Uhr	Referat Nr. 7: Das Horner Bad als Beispiel für ressourcensparende und funktionale Architektur Innenarchitekt BDA, Dipl.-Ing. Clav Rothauscher, jänßen bär partnerschaft mbB, Bad Zwischenahn   Hamburg
09:40 Uhr	Grußworte durch Staatsrat Jan Fries Staatsrat bei der Senatorin für Soziales, Jugend, Integration und Sport	16:10 Uhr	Diskussion
	Grußworte durch Martina Baden Geschäftsführerin Bremer Bäder GmbH	16:30 Uhr	Tagungsende (Programmänderungen vorbehalten)
10:00 Uhr	Referat Nr. 1: Bäderbau in Zeiten knapper Energie- und Finanzressourcen – ein Impulsvortrag aus kommunaler Sicht Hans-Jürgen Lütje, Bürgermeister der Gemeinde Büsum		
10:30 Uhr	Referat Nr. 2: Bäderprojekte in Zeiten knapper Finanzressourcen – Gedanken zu Finanzierung und Förderung aus Bauherrensicht Olaf Raffel, Kurdirektor und Geschäftsführer der Nordseeheilbad Cuxhaven GmbH, angefragt		
11:00 Uhr	Produktinformation I		
11:10 Uhr	Kaffeepause / Ausstellungsbesuch		



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 A.G. Hannover 1462  
 gemeinnützig anerkannt

HAUPTSTELLE HAMBURG  
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- Event no. 27: *Berlin night of the science 2023* on 17.06.2023 – Photos of the stand during the event.



- Event no. 28: *Swiss workshop of TheGreefa project* on 13.09.2023 – Photos from the event and post on the website.  
Post link: <https://thegreefa.eu/2023/09/21/thegreefa-swiss-workshop/#more-1024>



- Event no. 29: *SUSTAINABLE MANAGEMENT OF ECOSYSTEMS FOR AGROECOLOGICAL TRANSITION AND FOOD SECURITY 20th INRGREF International Scientific Days* on 10-11.10.2023 – Certificate of participation of Meriem Soussi (INRGREF)



- Event no. 15: *Online-Course for students of Engineering for Production systems and products in horticulture* on 24.10.2022 and Event no. 30: *Online-Course for students of Engineering for Production systems and products in horticulture* on 06.11.2023 - Letter of recognition for UAL's professor



Subject: Letter of Recognition for Prof. Dr. Francisco Domingo Molina-Aiz for his contribution to teaching at Institut Agro Rennes-Angers, Angers, France

Angers, 21 November 2023

To Whom It May Concern

I hereby certify that Prof. Dr. Francisco Domingo Molina-Aiz, full professor at University of Almeria, Spain, has on two occasions, namely in November 2022 and 2023, given an oral presentation on the topic of *technologies in Mediterranean greenhouses for a sustainable agriculture*. In this presentation, which lasted 45 minutes and was given in French for the convenience of our last-year Master students in horticultural engineering, speciality "*LEPH (Engineering for Production systems and products in horticulture)*". Dr. Molina-Aiz shared his extensive experience and knowledge about sustainable greenhouse horticulture and in particular advanced techniques for climate control. The presentation was kindly given without remuneration, in the context of a "Snapshots" session, in which the students discover during brief presentations new approaches and techniques to be applied to the optimization and innovation of horticultural production systems. The contribution of Dr. Molina was very well received by students and staff and is gratefully acknowledged. We sincerely hope that he will be available for future presentations in the same or a similar context as well as for future scientific collaborations.

Yours sincerely,



Gerhard Buck-Sorlin  
 Professor of Ecophysiological Modelling and Arboriculture  
 Unité modale de recherche Institut de Recherche en Horticulture et Semenciers (IRHS)  
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En 2022, Agrocampus Ouest devient l'Institut Agro Rennes-Angers.



- Event no. 31: ECOMONDO The Green Technology Expo on 07-09.11.2023 – Photos of TheGreefa partners in the project’s stand and post on the website, Programme in the EC website with the pitching session and TheGreefa presentation

Post link: <https://thegreefa.eu/2023/11/30/thegreefa-stand-at-ecomondo/>



Programme link: [https://rea.ec.europa.eu/events/ecomondo-event-ecological-transition-featuring-eu-funded-projects-2023-11-07\\_en](https://rea.ec.europa.eu/events/ecomondo-event-ecological-transition-featuring-eu-funded-projects-2023-11-07_en)

## Joint EU Stand

16 REA projects will be at the EU Stand to present their research results and discuss with visitors:

### Tuesday, 7 November

**RES4LIVE:** Energy Smart Livestock Farming towards Zero Fossil Fuel Consumption

[CORDIS](#) | [Website](#) | [LinkedIn](#) | [X](#) | [Facebook](#)

**TheGreefa:** Thermochemical fluids in greenhouse farming

[CORDIS](#) | [Website](#) | [LinkedIn](#) | [X](#) | [Facebook](#)

**FAIRCHAIN:** Innovative technological, organisational and social solutions for FAIRer dairy and fruit and vegetable value CHAINS

[CORDIS](#) | [Website](#) | [LinkedIn](#) | [X](#) | [Facebook](#)

### Thursday, 9 November

#### Pitch session with EU funded projects with sustainable solutions

Organised by: Ecomondo Scientific Technical Committee & European Commission

REA together with other three Executive Agencies of the European Commission, CINEA, HADEA and EISMEA, will invite to pitch funded SMEs and projects working on energy and environmental related topics. [More about the pitching session](#)

Two EU-funded projects managed by REA will take part in the pitching session:

**REMADYL:** Removal of Legacy Substances from polyvinylchloride (PVC) via a continuous and sustainable extrusion process.

More about the project on:

[CORDIS](#) | [Website](#) | [LinkedIn](#) | [X](#) | [Facebook](#)

**TheGreefa:** Thermochemical fluids in greenhouse farming.

[CORDIS](#) | [Website](#) | [LinkedIn](#) | [X](#) | [Facebook](#)

- Event no. 32: *Online-Training course Protected agriculture, climate change adaptation* on 14.02.2024 – Certificate of participation

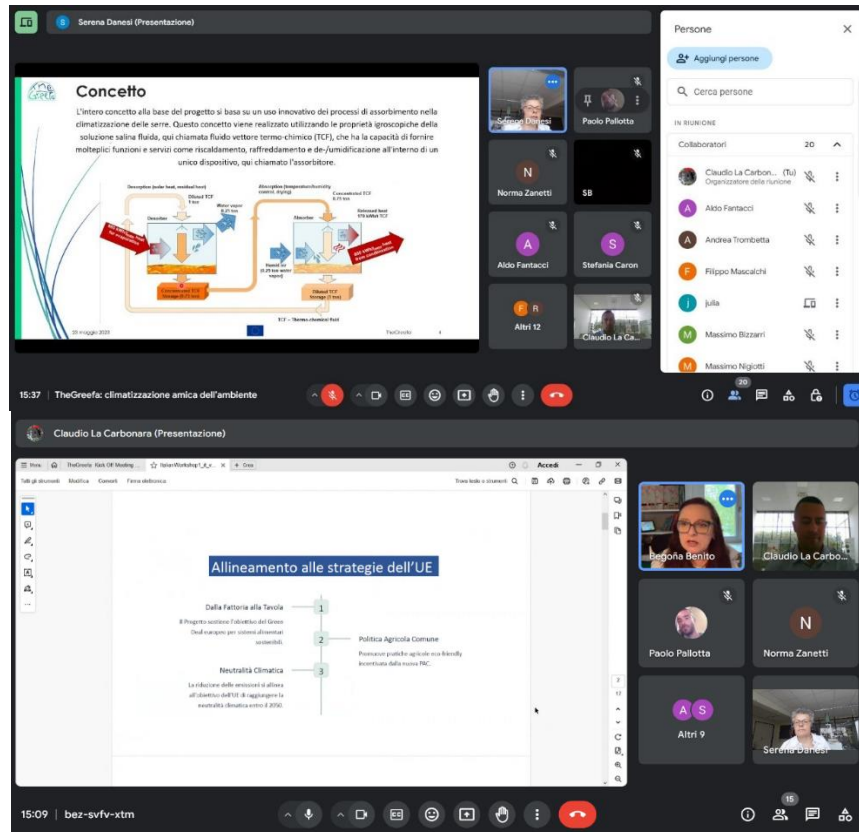


- Event no. 33: Joint webinar “The Farming Future: Opportunities and Challenges in the Agricultural Energy Transition” on 14.03.2024 – Recording of the event in AREA ZERO YouTube channel

Recording link: <https://youtu.be/UMpVz6Cv7m0?si=eaU0gaqilmPC-aDb>

- Event no. 34: Italian webinar of TheGreefa project on 23.05.2024 – Screenshots of the online event and the webinar invitation

Post with the invitation: <https://thegreefa.eu/2024/05/21/italian-webinar-thegreefa-environmentally-friendly-air-conditioning/>



- Event no. 35: Final workshop of TheGreefa project on 28.05.2024 – Photos of the event and posts on the website

Post link: <https://thegreefa.eu/2024/06/07/final-meeting-final-workshop/#more-1105>

Post link: <https://thegreefa.eu/2024/05/22/thegreefa-final-workshop/>





- Event no. 36: *Spanish workshop of TheGreefa project on 10.06.2024 – Photos from the event*

