D4.14 Comprehensive and reduced Report on the Clustering activities with other projects

THEGREEFA

Thermochemical fluids in greenhouse farming

This project has received funding from the European Union's Horizon 2020 research and innovation Programme under grant agreement 101000801.

Document references

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[1] PU = Public
PP = Restricted to other programme participants (including the Commission Services)
RE = Restricted to a group specified by the consortium (including the Commission Services)
CO = Confidential, only for members of the consortium (including the Commission Services)

Document history

V	Date	Beneficiary	Short description of contents and/or changes
V0.1	31/05/2024	IZNAB (Jakub Pluta)	The 1st version of the report for partners' review
V1.0	31/05/2024	IZNAB (Jakub Pluta)	Final version of the report for submission

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Executive Public Summary

The success of TheGreefa project strongly depends on the dissemination of the project results. To broaden the reach of the project's target groups, it is advisable to establish cooperation with other projects, which allows for the exchange of knowledge and broader networking.

The aim of this report is to outline the collaboration that TheGreefa consortium has undertaken with other projects working in a similar field. AREA ZERO, the alliance of six projects has been formed focusing on the areas of agriculture and energy efficiency. The report contains information about what the cooperation in the cluster consists of and the dissemination activities undertaken.

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1. Document information

This Deliverable comprises the actions undertaken in *T4.6 Collaboration with sister projects*. The success of TheGreefa project strongly depends on the dissemination of the project results. In doing so, we should reach out to defined target groups, among which are stakeholders, greenhouse cultivation professionals, owners, technology suppliers, consulting companies, etc. To broaden the dissemination and be able to reach more potential customers, it is advisable to establish cooperation with other organisations and projects working in a similar field. This activity was foreseen in TheGreefa project from the beginning, as a specific task was defined for this (T4.6). The cooperation should be based on the exchange of experience, knowledge, and opinions as well as joint dissemination activities.

The aim of this paper is to report on the activities undertaken by TheGreefa Consortium to establish cooperation with sister projects also funded by the European Union and to explain what this cooperation consists of.

a. Relation to other activities

The clustering activities relate to the Consortium's work in all tasks of WP4 where TheGreefa partner dealt with dissemination of the project's results, strategies for exploitation and IPR management, as exchange of knowledge is a part of cluster collaboration.

b. Partners contribution

The partners who are in the most involved in clustering activities are IZNAB as the Dissemination Leader and ZHAW as the Coordinator of the project. Of course, TheGreefa partners are also participating in the activities of the cluster during specific dissemination activities – presentations of the results during common events, joint events, joint scientific publications, etc.

2. AREA ZERO cluster

a. Structure

TheGreefa consortium has started to collaborate with five other projects funded by the European Union under calls FNR-06 A and B, LC-SC3-ES-3-2018/2020 and LC-SC3-RES-28-2018/2020.

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/

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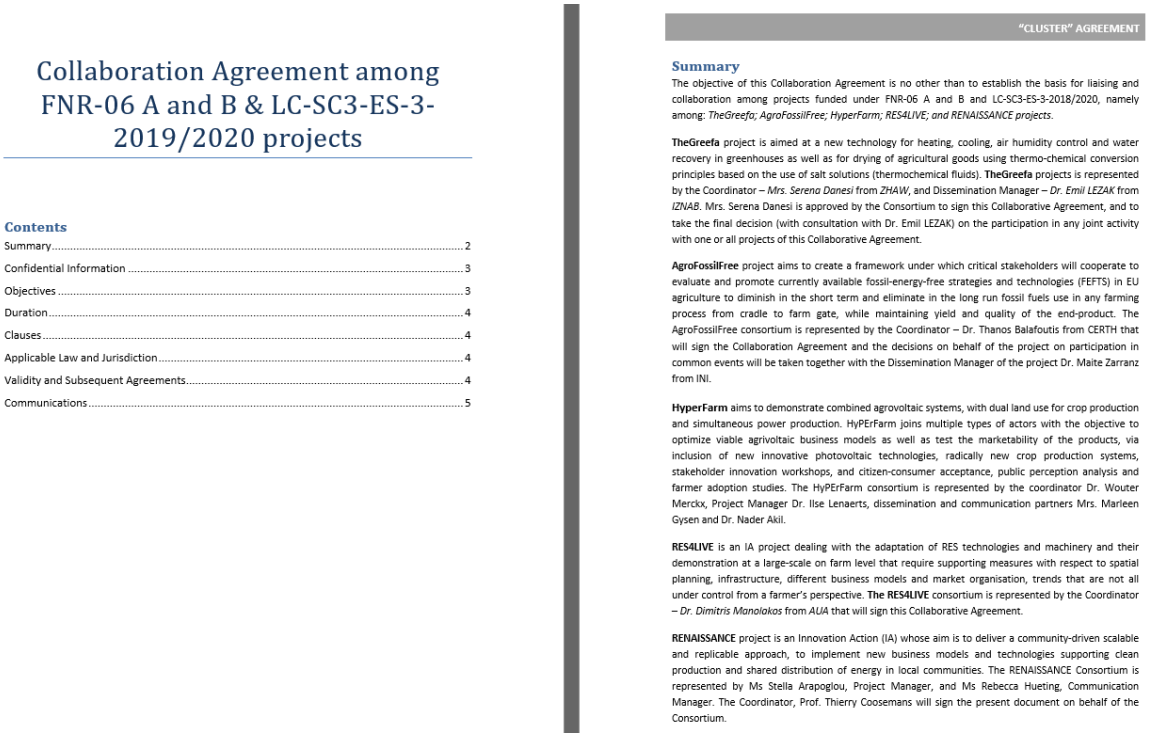
HyPErFarm – Hydrogen and Photovoltaic Electrification on Farm (GA 101000828)
https://hyperfarm.eu/

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/

The first collaboration was established in the first 6 months of TheGreefa project. In March 2021 a cooperation agreement between TheGreefa, AgroFossilFree, HyPErFarm, RES4LIVE and Renaissance was already signed. In June 2021 AgroBioHeat joined the cluster.



Collaboration Agreement among FNR-06 A and B & LC-SC3-ES-3-2019/2020 projects

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"CLUSTER" AGREEMENT

Summary

The objective of this Collaboration Agreement is no other than to establish the basis for liaising and collaboration among projects funded under FNR-06 A and B and LC-SC3-ES-3-2018/2020, namely among: *TheGreefa; AgroFossilFree; HyperFarm; RES4LIVE; and RENAISSANCE projects.*

TheGreefa project is aimed at a new technology for heating, cooling, air humidity control and water recovery in greenhouses as well as for drying of agricultural goods using thermo-chemical conversion principles based on the use of salt solutions (thermochemical fluids). **TheGreefa** projects is represented by the Coordinator – *Mrs. Serena Danesi* from *ZHAW*, and Dissemination Manager – *Dr. Emil LEZAK* from *IZNAB*. Mrs. Serena Danesi is approved by the Consortium to sign this Collaborative Agreement, and to take the final decision (with consultation with Dr. Emil LEZAK) on the participation in any joint activity with one or all projects of this Collaborative Agreement.

AgroFossilFree project aims to create a framework under which critical stakeholders will cooperate to evaluate and promote currently available fossil-energy-free strategies and technologies (FEFTS) in EU agriculture to diminish in the short term and eliminate in the long run fossil fuels use in any farming process from cradle to farm gate, while maintaining yield and quality of the end-product. The AgroFossilFree consortium is represented by the Coordinator – Dr. Thanos Balafoutis from CERTH that will sign the Collaboration Agreement and the decisions on behalf of the project on participation in common events will be taken together with the Dissemination Manager of the project Dr. Maite Zarranz from INI.

HyperFarm aims to demonstrate combined agrovoltaic systems, with dual land use for crop production and simultaneous power production. HyPErFarm joins multiple types of actors with the objective to optimize viable agrivoltaic business models as well as test the marketability of the products, via inclusion of new innovative photovoltaic technologies, radically new crop production systems, stakeholder innovation workshops, and citizen-consumer acceptance, public perception analysis and farmer adoption studies. The HyPErFarm consortium is represented by the coordinator Dr. Wouter Merckx, Project Manager Dr. Ilse Lenaerts, dissemination and communication partners Mrs. Marleen Gysen and Dr. Nader Akil.

RES4LIVE is an IA project dealing with the adaptation of RES technologies and machinery and their demonstration at a large-scale on farm level that require supporting measures with respect to spatial planning, infrastructure, different business models and market organisation, trends that are not all under control from a farmer's perspective. **The RES4LIVE** consortium is represented by the Coordinator – *Dr. Dimitris Manolakos* from *AUA* that will sign this Collaborative Agreement.

RENAISSANCE project is an Innovation Action (IA) whose aim is to deliver a community-driven scalable and replicable approach, to implement new business models and technologies supporting clean production and shared distribution of energy in local communities. The RENAISSANCE Consortium is represented by Ms Stella Arapoglou, Project Manager, and Ms Rebecca Hueting, Communication Manager. The Coordinator, Prof. Thierry Coosemans will sign the present document on behalf of the Consortium.

Figure 1. Part of the Collaboration Agreement between the cluster projects.

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

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In June 2023 AgroFossilFree project has finished and since from since 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/

Finally, at the end of May 2024 there are 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.

b. Website

The AREA ZERO website has been created and is managed by IZNAB. Other cluster projects were invited to propose and publish content. The website presents the previous and current members of AREA ZERO and news section for publication of information about results and events. The website address is https://areazerocluster.eu/.

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Figure 2. AREA ZERO website www.areazerocluster.eu.

c. Activities

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.

The real cooperation started at the beginning of 2022. TheGreefa took the initiative to organise a joint meeting to discuss further cooperation and the creation of joint dissemination materials. The meeting was organised on 3rd of February 2022. On the meeting projects discussed responsibilities of creation of the dissemination materials, logo and about name of the cluster. Later it was decided through voting the name of the cluster is AREA ZERO – Alliance for Renewable Energy in Agriculture and Zero Fossil Energy. AgroFossilFree was responsible for design of the common poster, TheGreefa for design of the common brochure, and RES4LIVE for logo.

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AREA ZERO

Alliance for Renewable Energy
in Agriculture and Zero Fossil Energy

Figure 3. AREA ZERO logo

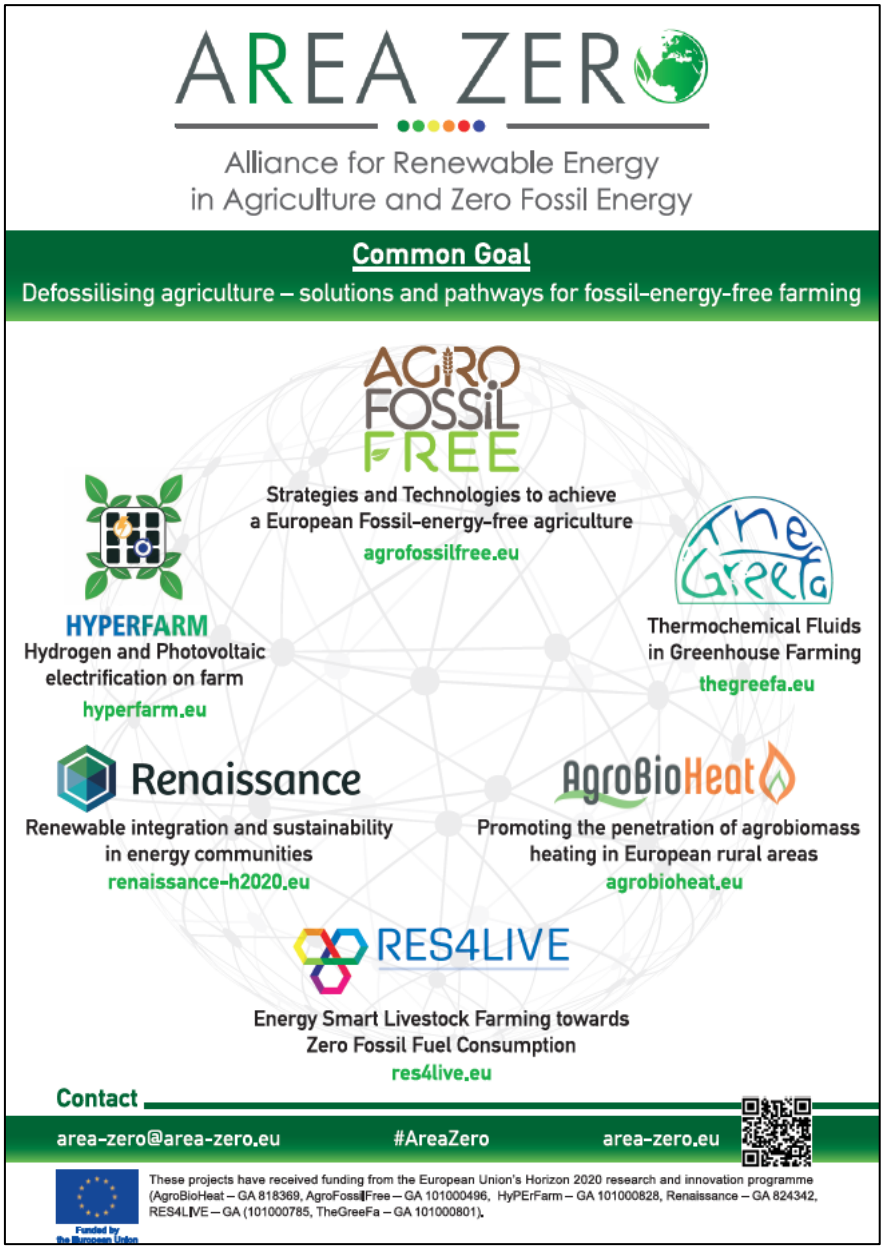

Figure 4. AREA ZERO poster

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Figure 5. AREA ZERO brochure.

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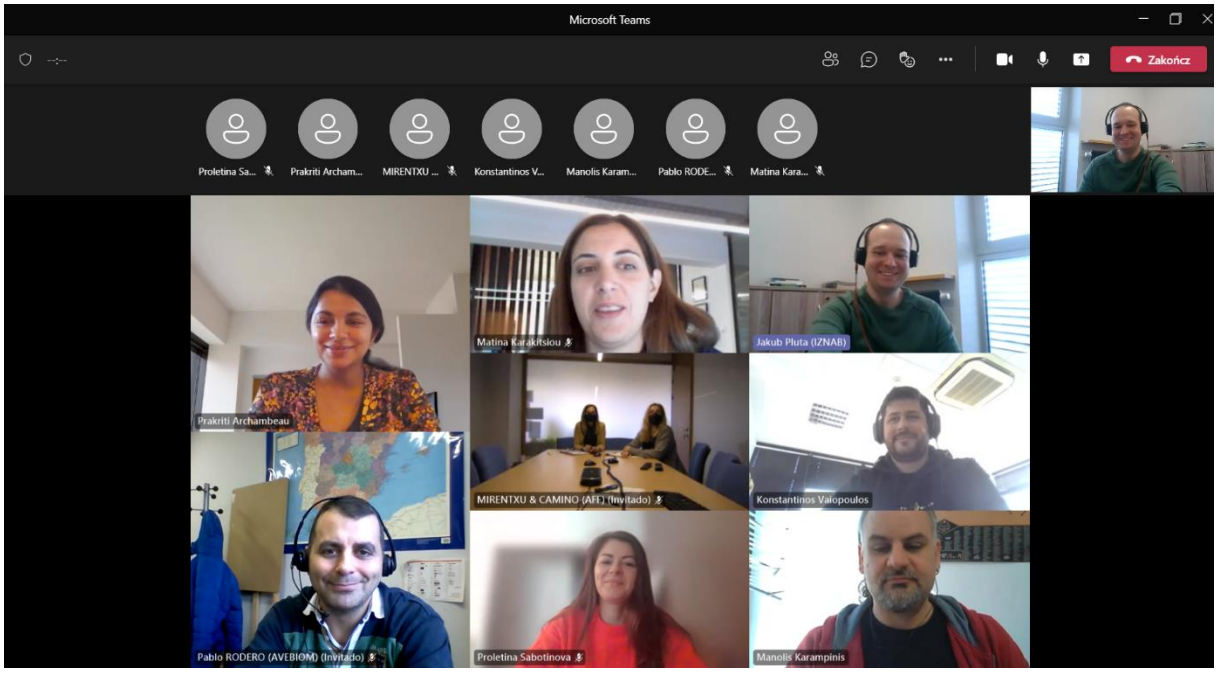

Figure 6. The AREA ZERO board meeting (03.02.2022).

To officially announce the collaboration the cluster decided to organise the 1st common event in a form of webinar. The webinar took place on 24th of March 2022. For TheGreefa it was also considered as the 1st international workshop out of three to be organised. The recording of the online event is available in YouTube: https://youtu.be/3Map4FXQwuI?si=DRhaor5p9TUrf14A.

Table 1. The agenda of AREA ZERO 1st webinar (24.03.2022).

Time	Title	Speaker
9:30-9:40	Opening and introduction of AREA ZERO	Emil Lezak *(IZNAB)*
9:40-10:00	AgroFossilFree presentation - Current energy status in EU agriculture - Farmers' needs, innovative ideas, and interests	Bas Paris & Vasso Kanaki *(AUA – Agricultural University of Athens)*
10:00-10:20	HyPErFarm presentation - Qualitative interviews: How do stakeholders perceive the idea of Agrivoltaic? - Potential of Biochar as a soil amendment in cropping systems	Ilse Lenaerts *(KUL – KU Leuven)* Gabriele Torma *(AU – Aarhus University)* Jannis Grafmüller *(Offenburg – Hochschule Offenburg)*
10:20-10:40	AgroBioHeat presentation - Producing energy from agrobiomass in Europe: potential, current status & technologies	Michalis-Alexandros Kougioumtzis *(CERTH – Centre for Research and Technology Hellas)*

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	- Promoting modern agrobiomass heating technologies in rural Europe: highlights from the AgroBioHeat project	
10:40-11:00	RES4LIVE presentation - RES4LIVE overview - First results and interventions in pilot farms	Dimitrios Tyris *(AUA – Agricultural University of Athens)*
11:00-11:20	TheGreeFa presentation - Innovative greenhouse system for heat and humidity control with water recovery in a single process	Serena Danesi *(ZHAW – Zurich University of Applied Sciences)* Martin Buchholz *(WATERGY – Watergy GmbH)*
11:20-11:40	RENAISSANCE presentation - Are you planning to kick-start an agrivoltaic energy community?	Rebecca Hueting *(DBlue – Deep Blue)*
11:40-12:00	Discussion and final Q&A	

For the 2nd event, the Cluster projects applied together for a policy session during the EUSEW 2022 Policy Conference. The online event was approved within the Extended Programme and took place on 22nd of September 2022. The event *Together towards energy-efficient and defossilised* agriculture was organised by TheGreefa, AgroFossilFree and RES4LIVE. The recording of the event is available: https://youtu.be/9qNUgmI2pFY?si=6HP1qnA0oONyDsmP.

On the 14th of June 2022, TheGreefa partner UAL participated in AgroFossilFree project's transnational innovation workshop in Athens. Mireille Nathalie Honoré (UAL) gave a presentation of TheGreefa project and then participated in the panel discussion.

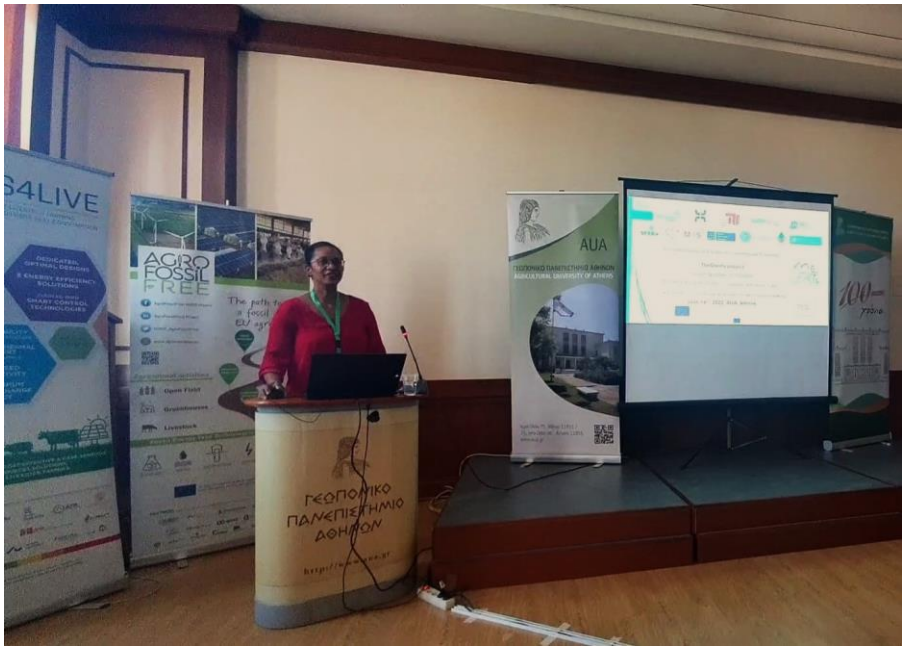

Figure 7. TheGreefa presentation during AgroFossilFree's workshop in Athens.

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Another transnational workshop was organized in Poland in Warsaw, where TheGreefa was invited. IZNAB participated in the event on 23rd of September 2022. The event was a good occasion for discussion and exchange of ideas between researchers and farmers.

TheGreefa have printed the AREA ZERO poster and brochures to use them for the cluster dissemination during the project's events, e.g. during the Swiss workshop in September 2023.

Figure 8. TheGreefa and AREA ZERO posters during the Swiss workshop (13.09.2023).

The last joint event where TheGreefa participated was the AREA ZERO online event on 14th of March 2024 - *The Farming Future: Opportunities and Challenges in the Agricultural Energy Transition*. 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. The recording is also available online: https://youtu.be/UMpVz6Cv7m0?si=HSGF9s96-C7bQOen.

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*

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in agriculture. The document is available online: https://www.agrofossilfree.eu/wp-content/uploads/2023/10/PB16.pdf.

Figure 9. The Policy Brief prepared by TheGreefa.

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3. Future actions

At the end of TheGreefa, the project is still the member of the AREA ZERO cluster. On the 29th of May 2024, there was an online meeting of the cluster to discuss further plans. IZNAB participated to the meeting.

The 2 old projects (HyPErFarm and RES4LIVE) remain still active. 3 new projects (PV4Plants, Symbiosyst and REGACE) joind the cluster in March 2024. During the meeting another project interested to join AREA ZERO participated and gave a short presentation – Value4Farm (GA 101116076).

It means that in June 2024, there are 6 active projects in the cluster.

TheGreefa remains in contact with the other projects. Transfer of the cluster website to one of the new members is in consideration. IZNAB informed also the cluster members that TheGreefa is interested in participation in the future events, if possible, to disseminate the projects final results.

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4. Conclusions

The aim of this report is to outline the collaboration that TheGreefa consortium has undertaken with other projects working in a similar field. AREA ZERO, the alliance of six projects has been formed focusing on the areas of agriculture and energy efficiency. The name and the common logo and dissemination materials such as brochure and poster of the alliance have been developed by all the projects and were used during the dissemination and communication activities.

TheGreefa took active part in organisation of three common online events which have been recorded and are available online in the cluster's YouTube channel.

The project helped in preparation and publication of the policy documents shared by the AREA ZERO cluster.

New members have been invited to AREA ZERO to inherit the cluster and perform future activities.

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