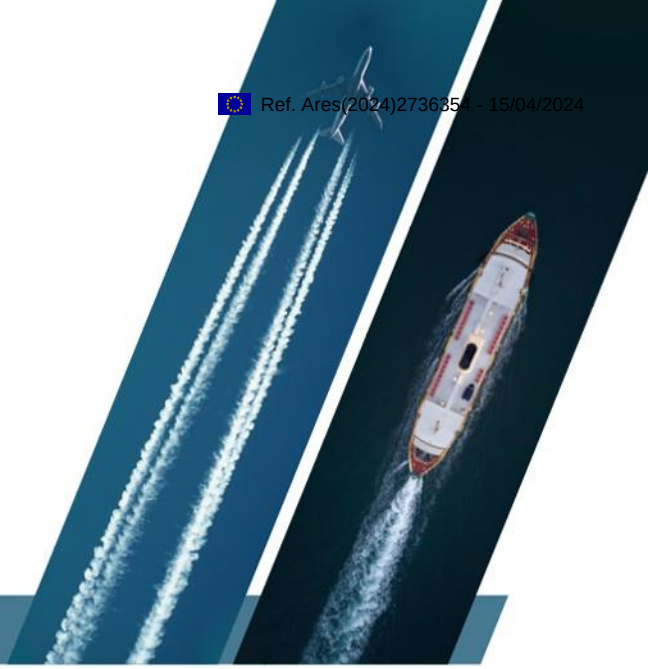
BioSFerA
Biofuel for biotravels



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EUROPEAN COMMISSION
European Climate, Infrastructure and Environment Executive Agency (CINEA)

Biofuels production from **S**yngas
Fermentation for **A**viation and maritime use
Grant Agreement No 884208

Deliverable D8.5

Final report on communication and dissemination activities

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Document Details

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Contents

Executive Summary

This document aims at identifying, reporting and monitoring the communication and dissemination activities undertaken by BioSFerA consortium during M42-48. The present report also represents a final update of both the public dissemination and the exploitation strategy at the end of the project and behind it. The public strategy here described is complementary to the confidential exploitation plan identified for the BioSFerA's results in D7.4 TRL9 Roadmap.

1 Introduction to the project

BioSFerA aims to develop cost-effective interdisciplinary technology to produce sustainable aviation and maritime fuels. Biogenic residues will be gasified, and the syngas will be fermented to produce bio-based triacylglycerides (TAGs). At the end of the project at least two barrels of Hydrotreated TAGs will be produced as next generation aviation and marine biofuels. BioSFerA international consortium is composed by **some research and public institutes**: CERTH (Greece), VTT (Finland), Fundacion Cartif (Spain), Bio base Europe pilot plant VZW (Belgium), CSIC (Spain), National Technical University of Athens (Greece); and **some private companies**: Kuwait Petroleum Research and Technology B.V. (Netherlands), RINA-Consulting spa (Italy), Sumitomo SHI FW Energia oy (Finland), GOOD FUELS (Netherlands), Environment Park spa (Italy).

2 Communication and dissemination strategy management

The communication and dissemination strategy is built through a bottom-up approach where all partners are involved in making decisions. For such reason, a detailed communication and dissemination survey has circulated within the consortium after the kick-off meeting to collect first insights about partners' communication channels and internal organisation. Based on the output of the survey, a dedicated *communication and dissemination board*, composed by partner's communication manager, has been established. The main objective of the communication and dissemination board is to involve all partners in dissemination activities and decisions to increase the impact of the project results.

3 Communication channels

3.1 Digital media

3.2 Website

The project website (https://biosfera-project.eu/) has been regularly updated with news available for partners to translate see *Fig.1.* Moreover, the publications section collects project deliverables and public documents that can be downloaded. In the past six months, the publication section has been improved to show the two types of public document (see *Fig 2*).

Fig 3. Shows also the integration of the promotional BioSFerA project video in the website's home page (see chapter 3.5).

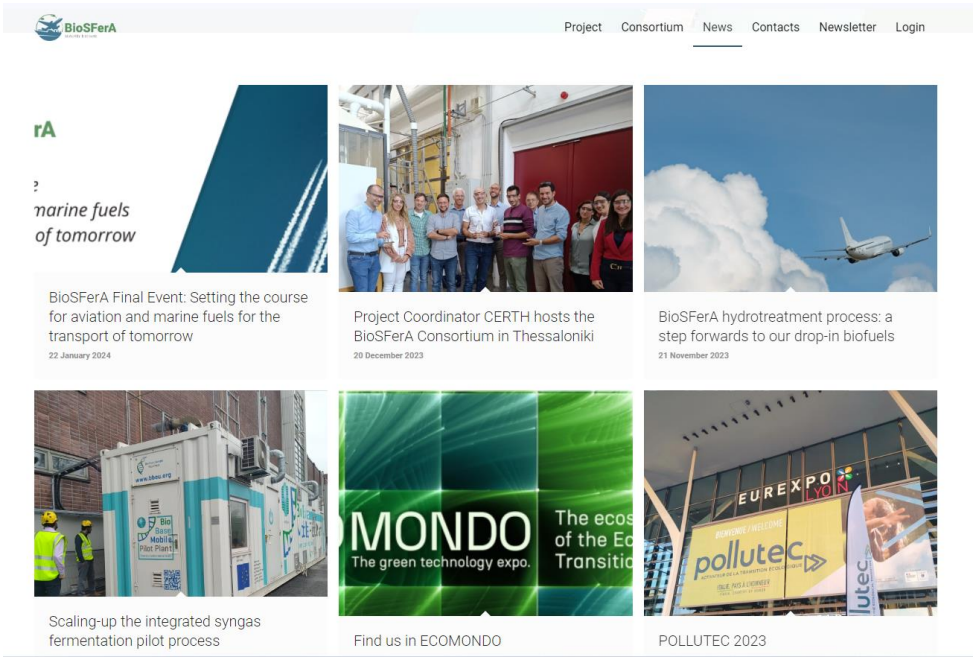


Figure 1 BioSFerA news webpage

Deliverables

Deliverable D2.2 "Report on selected evaluation indicators

Deliverable 2.2 "Report on selected evaluation indicators" is a public document of the BioSFerA project, delivered in the context of WP2 "Definition of full value chain" and it is an output of the Task 2.2 "KPIs definition".

Deliverable D2.1 Stakeholders requirements and market needs

Within this document, the identification of the stakeholders has been performed and a series of questionnaires has been developed in order to define their requirements and specifications, emphasizing on the potential benefits that BioSFerA project should bring to the fore.

Deliverable D1.2 Data Management Plan (first version)

This deliverable is the first version of the BioSFerA Data Management Plan and comprises the way that research data is handled during and after the project, what data will be collected, processed or generated, the methodology & standards to be applied and the kind of data sharing. Moreover, the methodology of how data will be shared and/or how to make them available to users is also presented.

Figure 2 Publications section

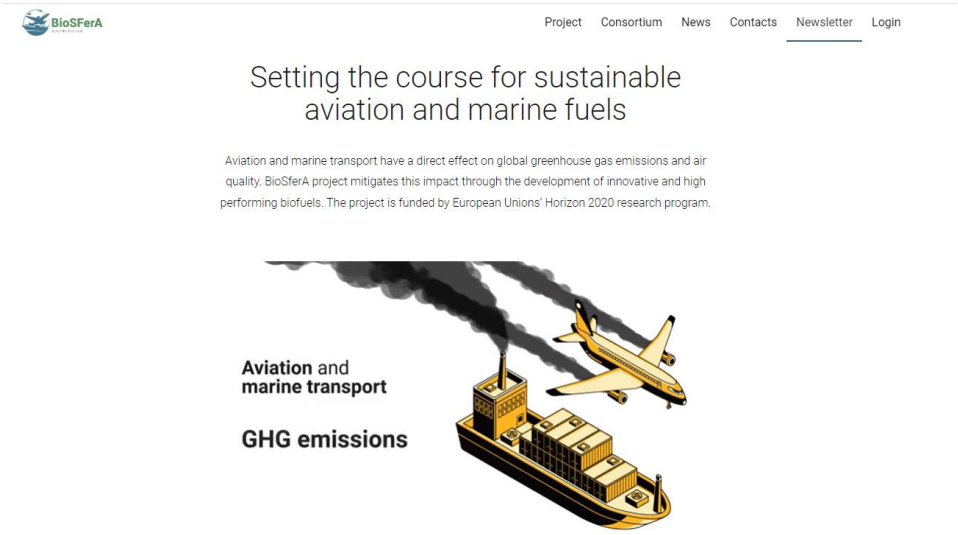


Figure 3 BioSFerA's video in the website's home page

In the past six months, the website has been also implemented with a new section dedicated to the "Partnership", collecting the European projects with whom BioSFerA enhanced collaborations (*Fig 4*):

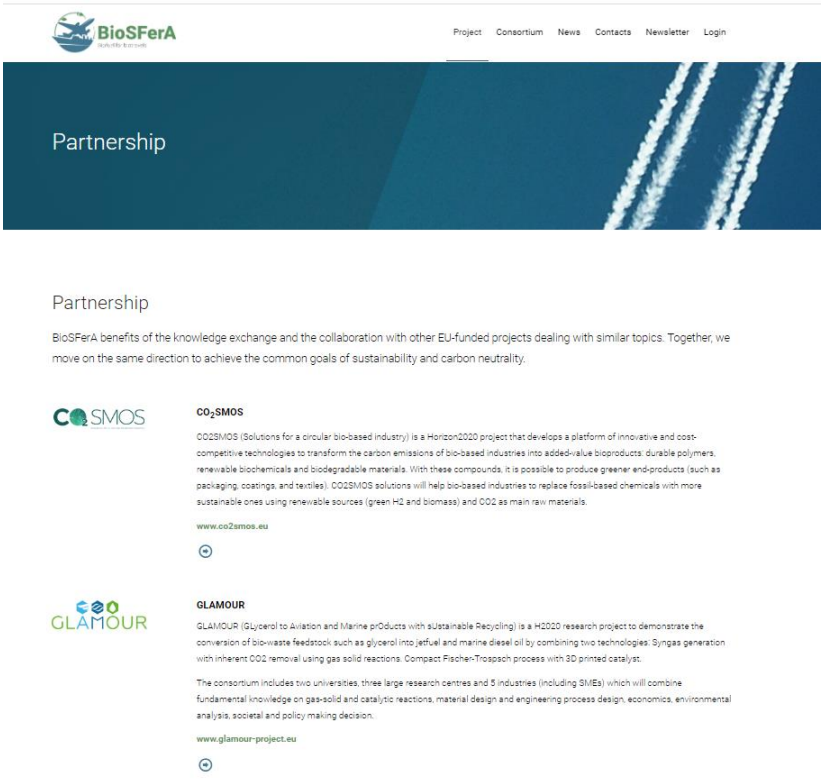
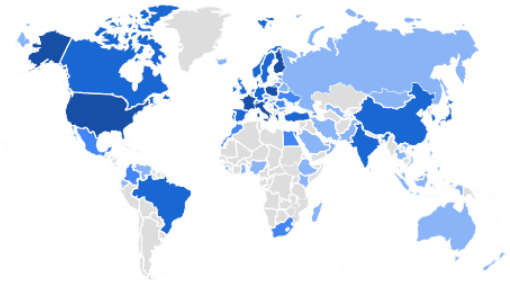


Figure 4: Partnership section on the website

Below the website analytics shows an increasing followers and visitors trend: worldwide visitors, including Extra-European followers, for about 300 visitors per month. Main users origins are Poland, United States, followed by Italy, Netherlands and France (*Fig. 5 and Fig. 6*):



VILLAGE	USERS
Poland	348
United States	330
Italy	161
Netherlands	120
France	106
Finland	89
Greece	80

Figure 5 Geographic website visitors distribution

	Village	Users	New users	Sessions with involvement	Engagement rate	Engaged sessions per user	Average duration of involvement	Event counting (All events)
		1,833 100% of the total	1,814 100% of the total	831 100% of the total	34.76% Same as average	0.45 Same as average	34 s Same as average	11,362 100% of the total
1	Poland	348	348	3	0.87%	<0.01	0 s	1,405
2	United States	330	330	31	9.17%	0.09	6 s	1.122
3	Italy	161	154	230	57.93%	1.43	2 m 00 s	2,788
4	Netherlands	120	114	53	37.32%	0.44	32 s	685
5	France	106	103	12	10.53%	0.11	10 s	404
6	Finland	89	86	42	40%	0.47	29 s	450
7	Greece	80	90	109	61.58%	1.36	1 m 57 s	963
8	Spain	61	57	61	62.24%	1.00	1 m 07 s	536
9	Germany	56	55	16	25.81%	0.29	17 s	256
10	Belgium	55	53	46	56.1%	0.84	50 s	413

Figure 6 Main channels

In addition to the institutional website, partners websites are used as well to amplify the impact of the dissemination activities. Below, in *Table 1*, there are the partners' website, the estimated monthly visitors and links to BioSFerA news published.

Table 1 BioSFerA partners' website

Partner name	Partner website	Website visitors/month	News about the project in partners website (October 2023 – March 2924)
~~**CERTH**~~	https://www.certh.gr	2500	
CERTH	https://www.cperi.certh.gr/projects-activities/	360	https://www.cperi.certh.gr/biosfera-final-event-press-release/
VTT	https://www.vttresearch.com/en	N/A	
CARTIF	https://www.cartif.es/en/home/	500	
BBEPP	http://www.bbeu.org/pilotplant/	N/A	https://www.bbeu.org/events/public-project-workshops/biosfera-final-event/
CSIC	https://www.cib.csic.es/es/	13.000 – 14.000	
KPRT	https://www.q8research.com/	N/A	
	https://www.q8.it	300.000 – 600.000	
	https://www.okq8.se	400.000	
	https://www.okq8.dk	50.000 – 100.000	
	https://www.q8.be	N/A	
	https://www.q8aviation.com	N/A	
RINA-C	https://www.rina.org/en/	150 K	
SFW	https://www.shi-fw.com/	N/A	
GOOD FUELS (GF)	https://goodfuels.com/	1,3 K (English website) – 310 (Dutch website)	
NTUA	https://www.ntua.gr/en/	N/A	
ENVI PARK	https://www.envipark.com/	1500	https://www.envipark.com/en/uncategorized/biosferas-consortium-gathers-in-helsinki-and-visits-the-projects-pilot-plant-at-vtt/ https://www.envipark.com/envi-news/marzo-2024-progetto-biosfera-e-i-risultati-della-ricerca-sui-biocarburanti-del-futuro-per-trasporti-aerei-e-marittimi/
			https://www.envipark.com/envi-news/biosfera-lincontro-a-helsinki-e-la-visita-allimpianto-pilota-nella-sede-di-vtt/

			https://www.envipark.com/en/uncategorized/march-2024-biosfera-is-setting-the-course-for-aviation-and-marine-fuels-for-the-transport-of-tomorrow/

3.3 Social media

3.3.1 BioSFerA social media

The WP8 responsible partner manages BioSFerA social media profiles and regularly involve partners communication managers to re-post and provide contributes to the editorial plan. The contents shared in project social media are in English.

To differentiate the type of contents shared and fully benefit from the social media potential, some of the rules followed for the content strategy and social media management are listed below:

- Use meaningful # in order to be in the flow of the BioSFerA topic related conversations. Some ideas (#Biofuels, #Biotravels, #energy transition, #aviation, #maritime, #research, #energy).
- Report the claim of the project "Biofuels for Biotravels!" to make them consistent with the whole communication strategy.
- Tag and connect with EU institutions[1], other EU-funded projects and notify the Project Officer of upcoming publications to maximise their visibility.
- Try to engage the audience asking questions or using replies, retweets or tags.
- Follow an editorial strategy based on different types of contents and diverse sources (text, pictures, videos, polls, links, etc.), for example:

[1] https://europa.eu/european-union/contact/social-networks_en#

1. Posts related to BioSFerA updates and news (presentation of partners, news about the publication of papers concerning project results, release of relevant project output, project progresses)

2. Share for share of interesting insights related to project topics (research results and new technologies, relevant infographics)

3. Live posting during project events or when participating in thematic Conferences/Fairs

Project social media have been opened and updated regularly as indicated in the communication plan (*See Fig 8 and 9*). Following the most popular social media among the consortium, a Twitter and LinkedIn account have been created.

In the period M42-48 the project's social media were animated by meetings, conferences and events participation, press release.

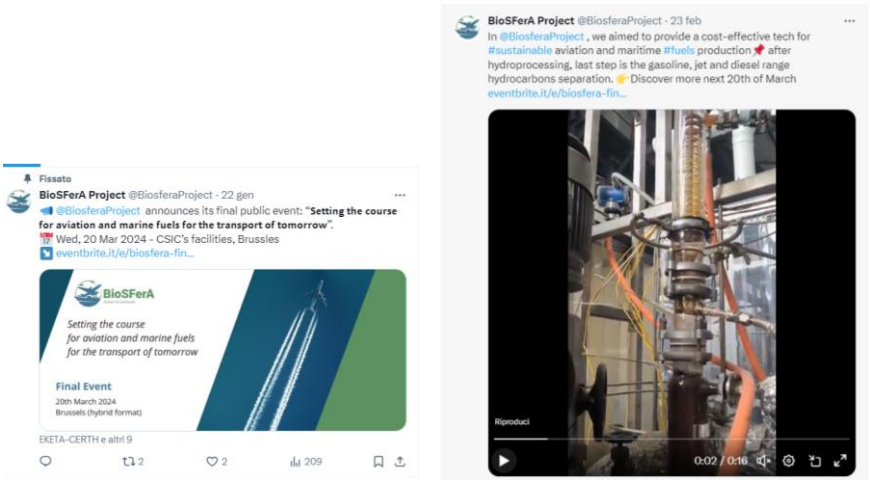


Figure 7 Example of posts in BioSFerA social media (X Platform)

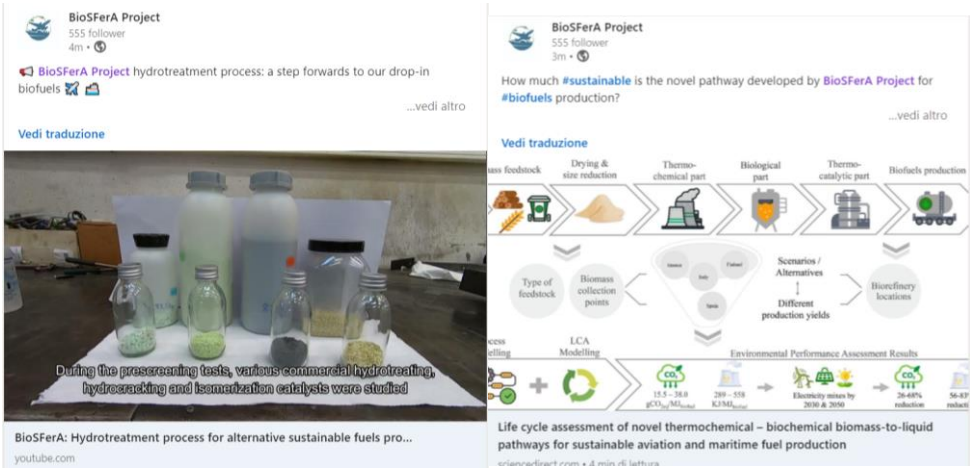


Figure 8 Example of post in BioSFerA social media (Linkedin)

Currently the Linkedin profile has 555 (+56) followers, while the X Platform/Twitter 76 (+4), showing a constant increase. In Linkedin, it is important to notice that the community which follows the profile is very consistent with BioSferA topics and goals as shown in *Fig 10*. Research, is the main area, but interest is shown also by the specific biomass electric power, high education and oil&gas sector. *Fig 11* shows the professional background of the followers with more involvement of research, operations and engineering type of profiles.

In Linkedin, the visitors trend increased up to 547 visitors with 195 unique visitors. A pick was identified in March in correspondence with the Final Event campaign (*Fig. 12*).

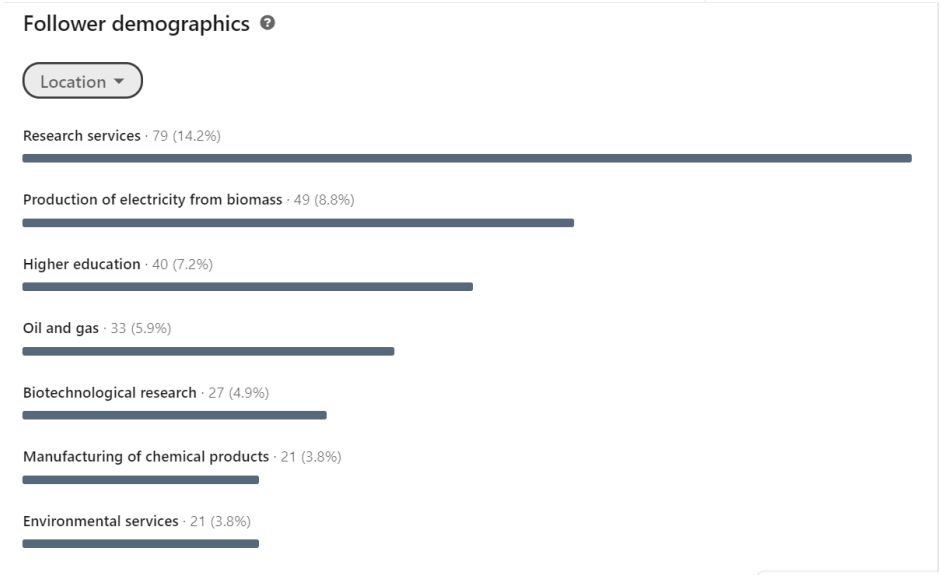


Figure 9 Followers industry

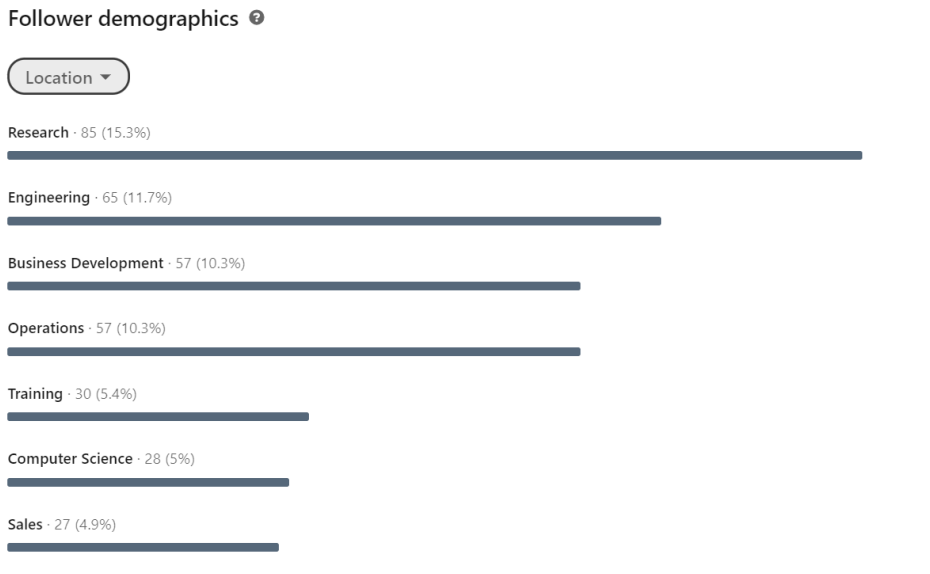


Figure 10 BioSFerA LinkedIn profile followers demographics

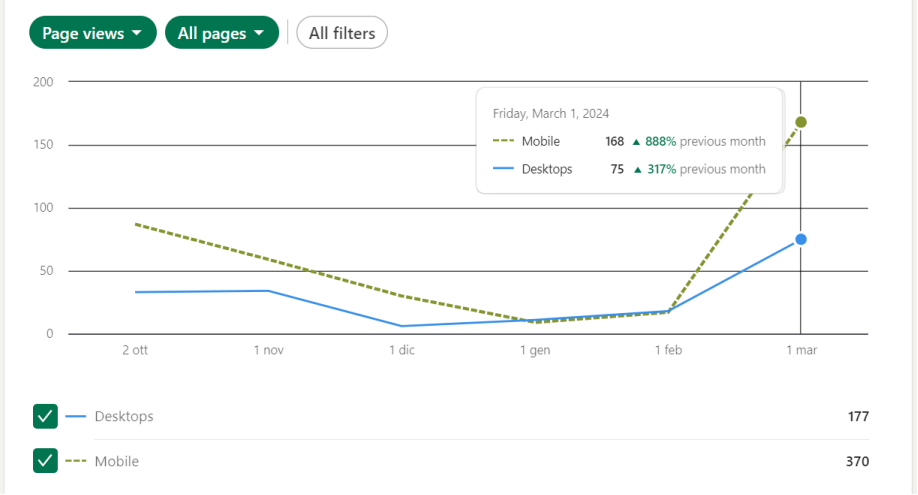


Figure 11 LinkedIn Visitors Trend

In addition to the institutional project profiles, partner social media are used as a multiplier of BioSFerA dissemination activities, as shown in *Table 2.* The column *"Repost by partners social media profile"* describes the reposts of BioSFerA contents that partners have made using their own social media accounts.

Table 2 Partners social media

Partner name	Social media profile	Social media profile followers	Repost by partners social media profile
TWITTER			
CERTH	**@CERTHellas**	2062	-
VTT	**@VTTFinland**	20.300	
CARTIF	**@CARTIFCT**	3785	
BBEPP	**@BioBaseEuropePP**	1.244	
CSIC	**@CIB_CSIC**	4.105	
RINA-C	**@RINA1861**	1.795	https://twitter.com/RINA1861/status/1769728946143186975 https://twitter.com/RINA1861/status/1763235535810634201
SFW	**@SumitomoSHIFW**	103	
GOOD FUELS (GF)	**@GoodFuelsmarine**	753	
NTUA	*N/A*		
ENVIPARK	**@EnvironmentPark**	556	https://twitter.com/EnvironmentPark/status/1712118736847597757

			https://twitter.com/BiosferaProject/status/1773373751989600529
LINKEDIN			
CERTH	**@Centre for Research & Technology Hellas (CERTH)**	16.234	
VTT	**@VTT**	31.462	
CARTIF	**@CARTIF**	5234	
BBEPP	**@Bio Base Europe Pilot Plant**	4.575	
CSIC	N/A		
KPRT	**@Kuwait Petroleum Research and Technology** **@OKQ8** **@Q8**	N/A	
RINA-C	**@RINA**	139.215	
SFW	**@Sumitomo SHI FW**	3.300	
GOOD FUELS (GF)	**@Good fuels**	2.094	
NTUA	**@lmtntua**	107	
ENVIPARK	**@ENVIPARK**	3.229	https://www.linkedin.com/feed/update/urn:li:activity:7176577454185078784 https://www.linkedin.com/feed/update/urn:li:activity:7171544029266853889 https://www.linkedin.com/feed/update/urn:li:activity:7171894765993639936

3.4 Newsletters and Traditional media

Concerning newsletters and traditional media, last newsletter with BioSFerA's updates was sent from Environment Park to its community (around 1500 subscribers) in November 2023. The VIII Press Release of the project was ready in December, reporting the GA meeting at CERTH's premises. Last Press Release was published just after the last GA meeting and Final Event in Brussels, held on March 2024. It will be shared in the next ENVIPARK newsletter, spring issue.

WWW.ENVIPARK.COM

NEWSLETTER ENVIPARK

In questa edizione di novembre, abbiamo selezionato una serie di iniziative e opportunità che riteniamo di maggior interesse. Troverete le principali news sul tema della riqualificazione energetica degli edifici pubblici, materiale di formazione su nuovi modelli di business circolari e corsi di formazioni per esperti in big data e IA e nuovi progetti in partenza.

Tra i prossimi appuntamenti, segnaliamo RESTRUCTURA, il salone dell'edilizia e della ristrutturazione che si terrà dal **23 al 25 Novembre** presso il Lingotto Fiere Torino. Ci saremo anche noi con un workshop per i professionisti dell'edilizia in legno.

ENVINEWS

PAESC DORA 5 LAGHI: approvato il Piano di Azione per l'Energia Sostenibile e il Clima

EUROPA festeggia a Torino il successo dei One Stop Shops e dei risultati del progetto sulla riqualificazione degli edifici residenziali

Transizione idrica ed energetica in Tunisia: l'esperienza di 14 imprese europee in missione d'affari in Africa

Envipark a Helsinki per la visita dell'impianto pilota di biocarburanti sostenibili realizzato con BioSFerA

Figure 12 Envipark Newsletter Nov 2023

3.4.1 BioSFerA Newsletter

Starting with the third year of the project, the Consortium decides to launce the official BioSFerA newsletter that will be provided about every 4 months, up to 6 newsletters overall. Main objective is to involve stakeholders and update with project progresses and results. Environment Park, as WP8 leader, will create and manage the newsletter sending, but the whole Consortium is involved in the process, supporting the newsletter content with materials and technical details.

A specific template is studied to be in line with the visual identity of the project and a specific section in the website is also available:

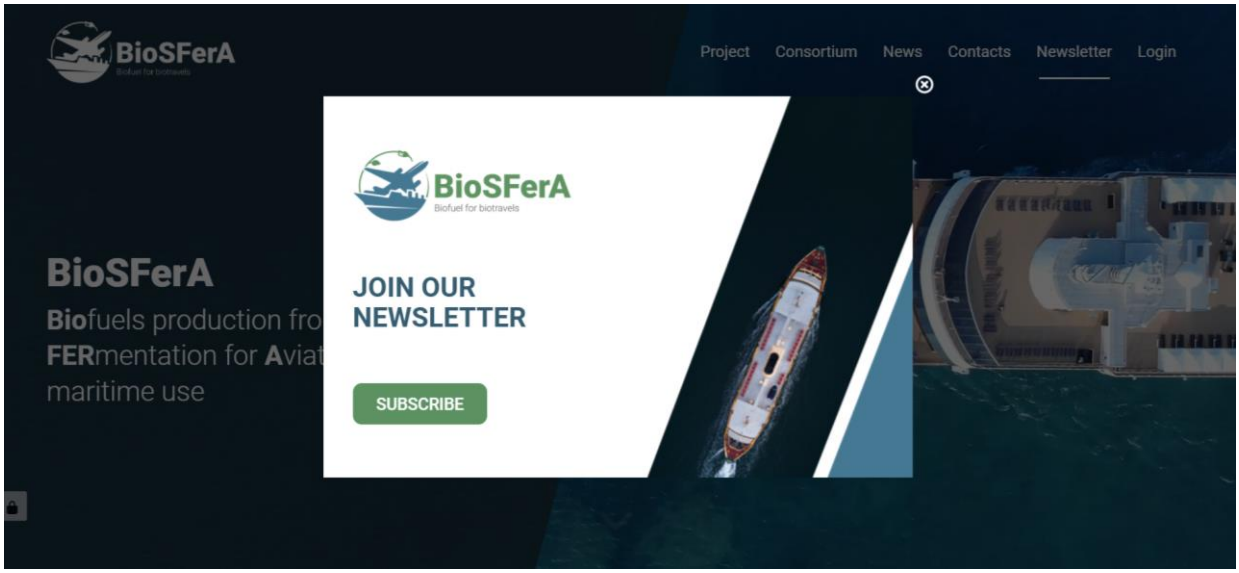


Figure 13 Pop-up for the Newsletter registration

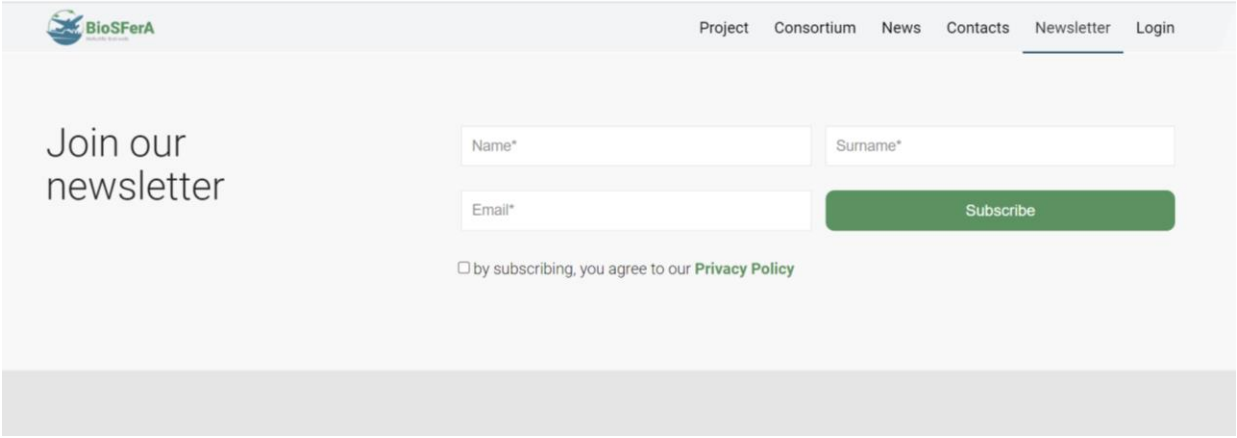


Figure 14 Registration form and website section for the Newsletter

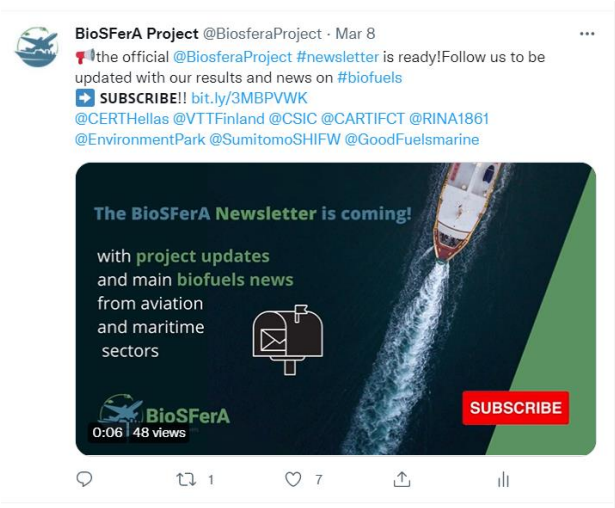


Figure 15 Post in social media to promote the BioSFerA's Newsletter

Before the release of the first BioSFerA's newsletter, a social campaign and dissemination has started in order to collect a large number of followers. As showed in Figure 16, dedicated posts are available in the project social profiles, Consortium and main project's contacts have also been aware about this new activity.

After a first ideas of contents, the newsletter has been organised considering the following sections finally:

- **BioSFerA's updates –** News and progresses of BioSFerA with link to news/publications sections on website;
- **The syngas fermentation pilot process –** section dedicated to the pilot scale process progresses refers to the specific website page;
- **Publications –** Scientific papers, articles and project deliverables;
- **Suggestions** - External link to events/conferences/interesting news related to the project topic.

#1 BioSFerA Newsletter – May 2022

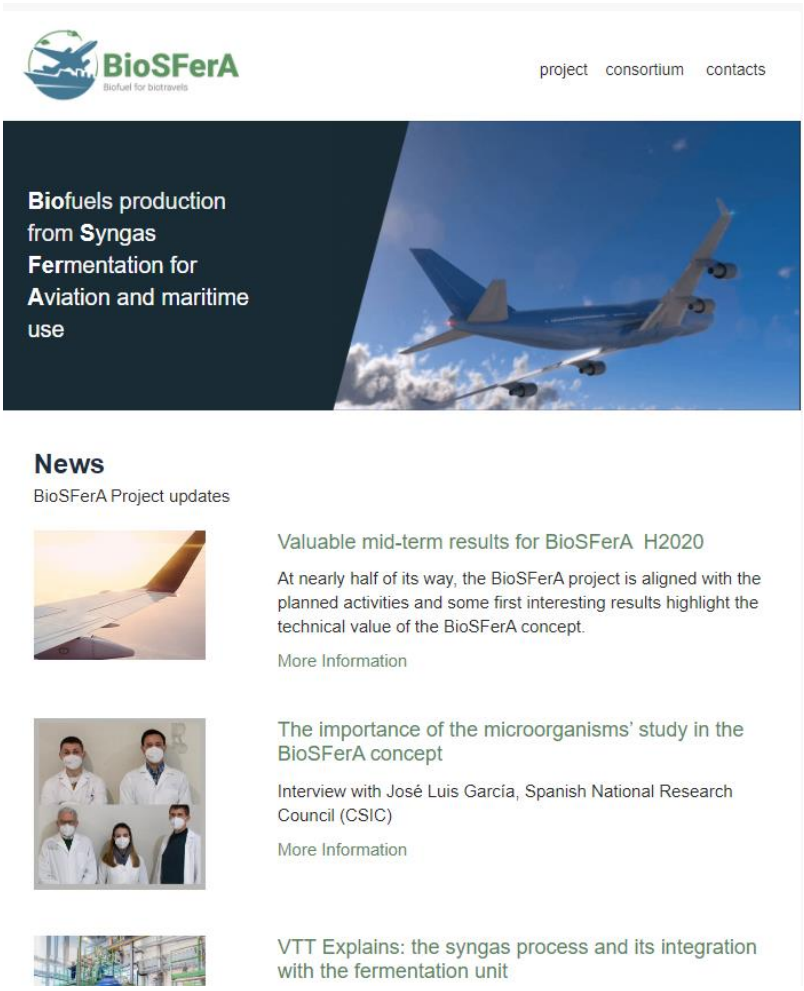


Figure 16 First BioSFerA Newsletter, May 2022

#2 BioSFerA Newsletter – December 2022

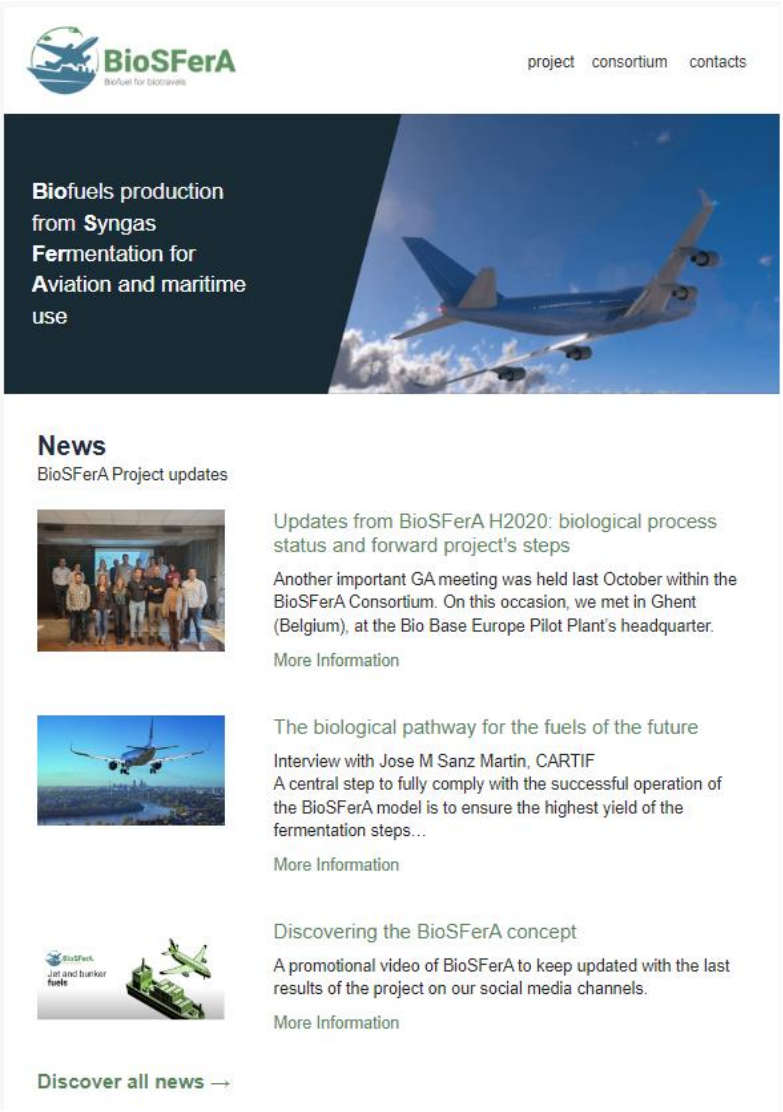


Figure 17 Second BioSFerA Newsletter, December 2022

#3 BioSFerA Newsletter – March 2023

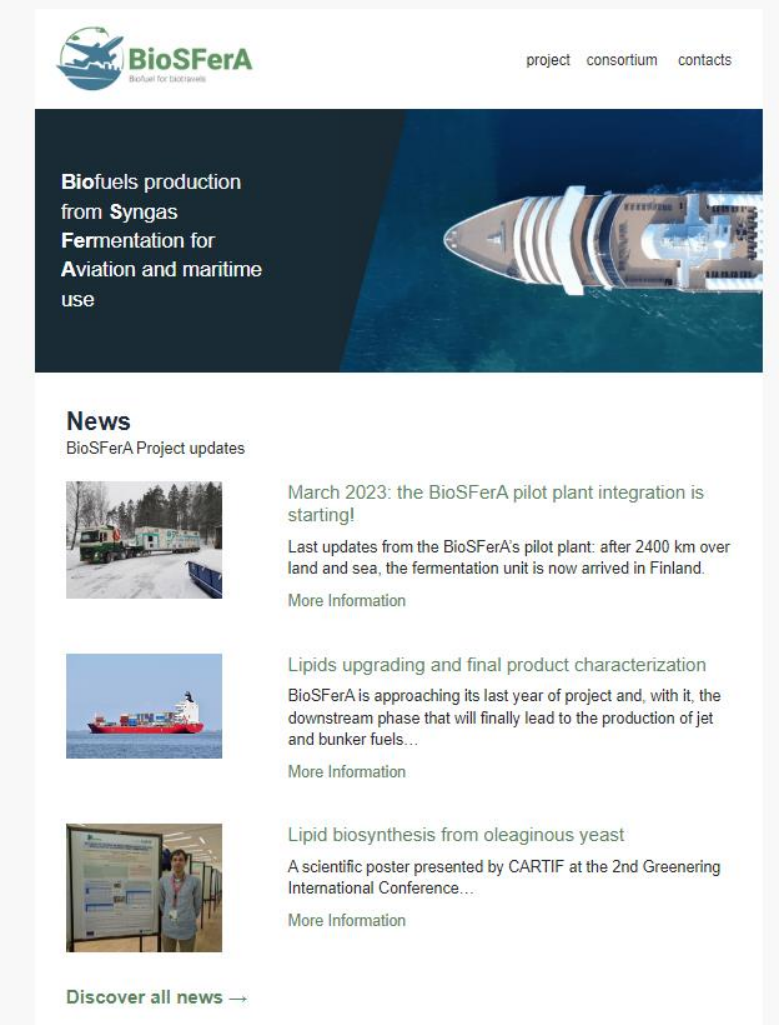


Figure 18 Third BioSFerA Newsletter, March 2023

#4 BioSFerA Newsletter – December 2023

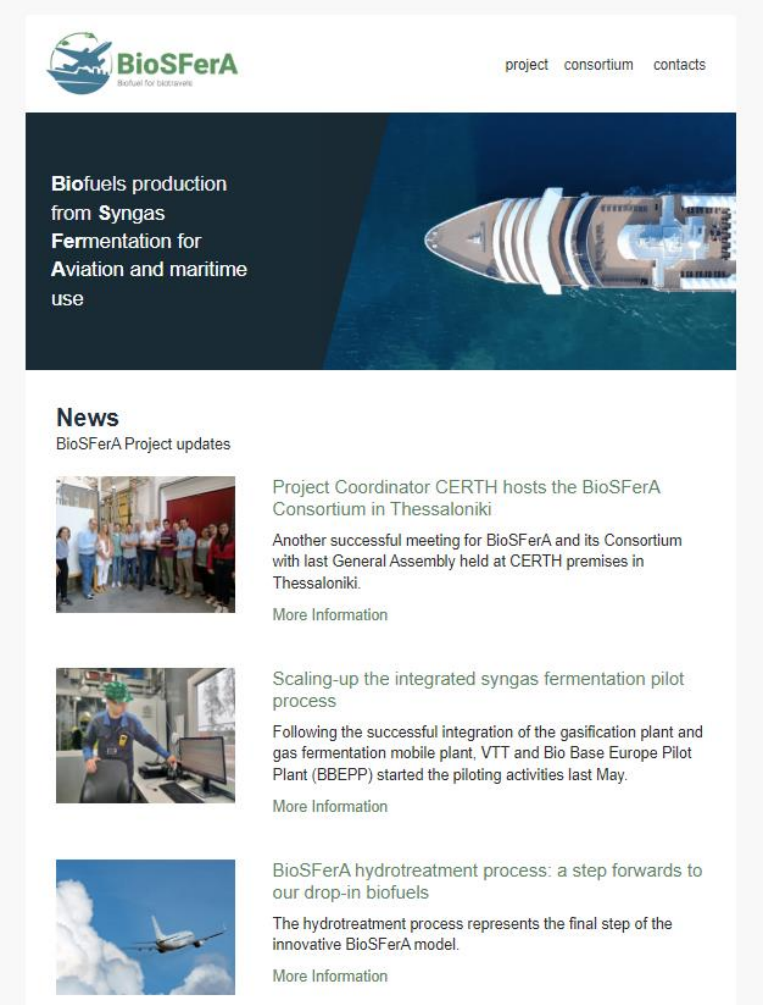


Figure 19 Forth BioSFerA Newsletter, December 2023

Table 3 BioSFerA's Newsletter analytics

Newsletter	Total contact reached	Contact reached (external)	Readers	Clicks
#1	78	14	26 (32%)	12 (15%)
#2	84	41	66 (78%)	19 (23%)
#3	84	41	54 (64%)	9 (11%)
#4	150	107	72 (48%)	32 (21%)

3.5 YouTube Channel

Considering future events and exhibitions, a specific YouTube channel (https://www.youtube.com/channel/UCHpTONGugCpuEdukwmQ-rsw) dedicated to the BioSFerA project has been opened. This new communication channel allows to reach a wider audience, giving visibility and better explaination of the ongoing activities.

The first video “BioSFerA Project: Biofuels for biotravels” is an animated promotional video (https://www.youtube.com/watch?v=YqlBIG8Db4Y) to simply explain BioSFerA, its objective and concept. In the period considered, the video had 123 (+49) visualizations overall (*Fig 19*).

A technical video has been also prepared by CERTH to show the hydrotreatment process at TRL3 and TRL5 (*Fig. 22*) (54 views since November), while other small videos have been used on social media for dissemination purposes and final event promotion.

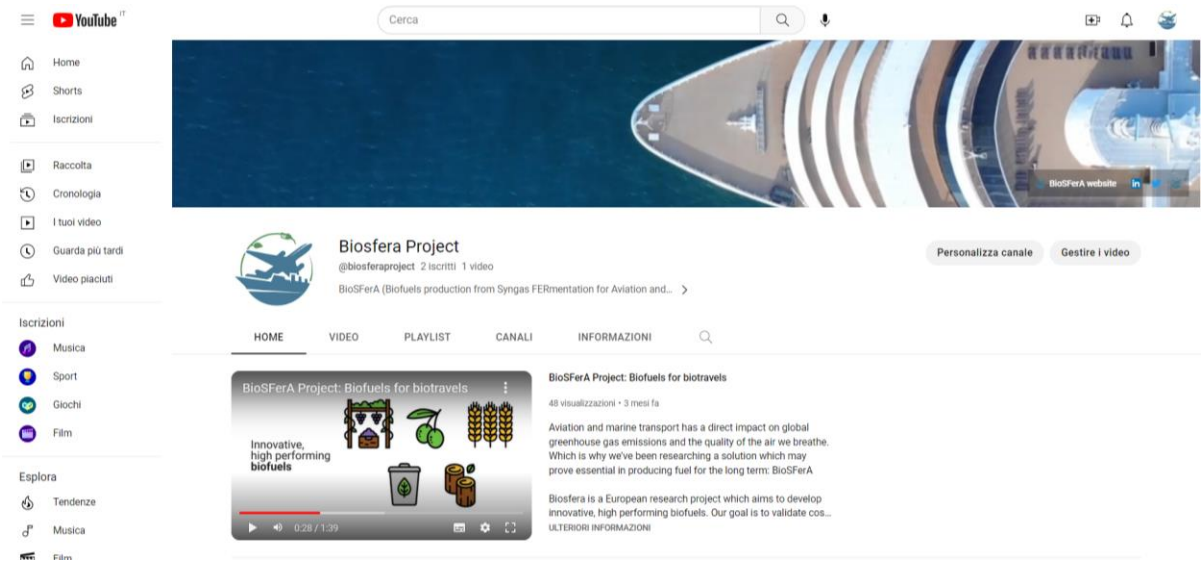


Figure 20 Official BioSFerA’s YouTube Channel

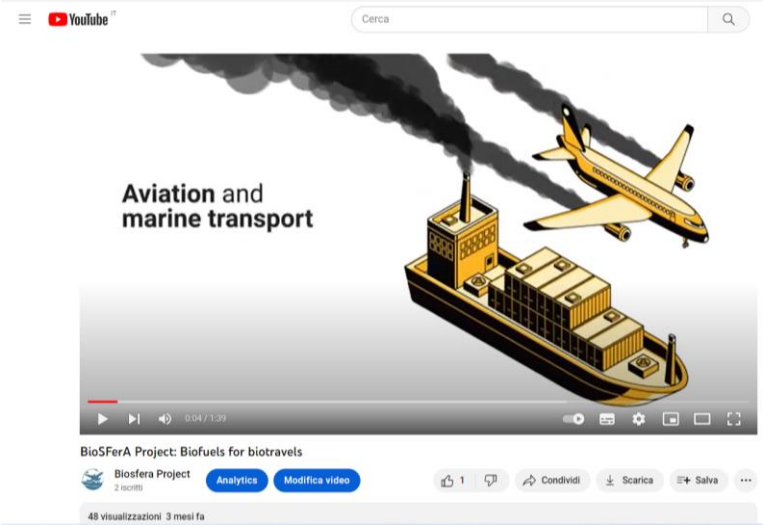


Figure 21 Official promotional video of BioSFerA's project

Figure 22 Hydrotreatment process video on BioSFerA channel

BioSFerA Project was also selected by the CINEA Communication team to be involved into a communication and dissemination campaign about European funded projects. In October 2023, the project coordinator was interviewed explaining project and its results. A video will be shared through CINEA Communication channels. The final video is expected to be released the following months.

3.6 Best E-Practice Booklet

In March 2024, the Best E-Practice Booklet was published on the BioSFerA's website (some months of delay, expected in July 2023). The document is meant as divulgative online flipbook with main objective to summaries the BioSFerA project and its technologies. Main target groups are companies, category's associations and policy makers.

“An Innovative Technological Pathway for Sustainable Jet and Bunker Fuels” is the title given to the document, that has been shared in the project’s website home page and project scheme’s sections (see *Fig.23*). Authors have been Environment Park, as dissemination leader, with support and contents from all technical partners.

Figure 23 BioSFerA Best E-Practice Booklet

4 Dissemination activities

4.1 Dissemination channels

4.2 Academic publications

Partners belonging to Research and public institution will publish papers based on project results and potentially published in international journals with high impact factor. A minimum target of 10 scientific publication has been set, while some of the papers will be published after the project conclusion. The academic dissemination will be coordinated by CERTH and ENVIPARK. The content will be reviewed by the consortium’s Scientific Committee (SC). The specified conditions for publication must be applied to the following formats: journal papers, book chapter, conference proceedings and peer-review publications.

At M48 the consortium has published the following 5 publications. However, other at least 4 papers are planned to be submitted after the end of the project:

Table 4 BioSFerA publications in journals

a/a	Partner	Journal	Title	Authors	Status
1	VTT	Catalysts	Activated Carbons for Syngas Desulfurization: Evaluating Approaches for Enhancing Low-Temperature H2S Oxidation Rate	Christian Frilund, Ilkka Hiltunen and Pekka Simell	Published
2	CSIC	Microbial Biotechnology Journal	Integrating greenhouse gas capture and C1 biotechnology: a key challenge for circular economy	José L. García,Beatriz Galán	Published
3	CERTH	Biomass Conversion and Biorefinery	Design considerations of an integrated thermochemical/biochemical route for aviation and maritime biofuel production	Nikolaos Detsios, Leda Maragoudaki, Konstantinos Atsonios, Panagiotis Grammelis, Nikolaos G. Orfanoudakis	Published
4	CERTH	Energies	Recent advances on Sustainable Aviation Fuels production: a critical review	Nikolaos Detsios, Stella Theodoraki, Lida Maragoudaki, Konstantinos Atsonios, Panagiotis Grammelis, Nikolaos Orfanoudakis	Published
5	CERTH	tbd	Microbial oil production from syngas and from glucose: simulation study and comparison	Lida Maragoudaki, Vassiliki Kaperneka, Konstantinos Atsonios	Planned
6	ENVIPARK	IIETA Journal	The production of biofuels for aircrafts and ships from waste and discards	Giorgia Pellegrino, Paola Zitella, Alexia Boulanger, Barbara La Licata, Debora Fino	Planned
7	CERTH	Bioresource Technology	Life Cycle Assessment of a novelthermochemical – biochemical biomass-to-liquid pathway for sustainable aviation and maritime fuel production	Dimitrios-Sotirios Kourkoumpas, Adamantia Bon, Angeliki Sagani, Konstantinos Atsonios,	Published

				Panagiotis Grammelis, Sotirios Karellas, Emmanouel Kakaras	
8	CERTH	Energies	Techno-Economic Evaluation of Jet Fuel Production via an Alternative Gasification-Driven Biomass-to-Liquid Pathway and Benchmarking with the State-of-the-Art Fischer–Tropsch and Alcohol-to-Jet Concepts	Detsios, N.; Maragoudaki, L.; Rebecchi, S.; Quataert, K.; De Winter, K.; Stathopoulos, V.; Orfanoudakis, N.G.; Grammelis, P.; Atsonios, K.	Published
9	CERTH	tbd	Dynamic process simulation and control of the BioSFerA BtL concept	Atsonios K., Plakia A, Papaioannou Ch.	Planned
10	BBEPP	Fermentation	Demonstrating pilot gas fermentation for acetate production from biomass-derived syngas streams	Pedro Acuna Lopez, Stefano Rebecchi, Evelien Uitterhaegen, Elodie Vlaeminck, Koen Quataert, Christian Frilund, Jaana Laatikainen-Luntama, Ilkka Hiltunen, Karel De Winter, Wim Soetaert	Submitted
11	ENVIPARK	tbd	tbd	Giorgia Pellegrino, Paola Zitella, Alexia Boulanger, Barbara La Licata, Debora Fino	Planned

The scientific journals listed in *Table 5* below have been identified as potential targets for academic dissemination.

Table 5 Potential journals for academic dissemination

Journal name	Publisher	Impact factor	ISSN	Areas of research
Applied Energy	Elsevier	8.848	0306-2619	energy conversion and conservation, optimal use of energy resources, energy processes analysis and optimization, mitigation of environmental pollutants, sustainable energy systems.
Journal of Chemical Technology and Biotechnology	Wiley	2.75	1097-4660	chemical, technology, biotechnology, catalysis, biocatalysis, environment, fermentation,
Fuel	Elsevier	5.578	0016-2361	Energy sources linked with environmental aspects and pollution
Fuel processing technology	Elsevier	4.982	0378-3820	Scientific and technological aspects of converting fossil and renewable resources to clean fuels, value-added chemicals, etc; renewable energy and storage energy, production of non-carbon-containing fuels, as hydrogen and ammonia
ChemSusChem	Chemistry Europe	7.962	1864-564X	Research about chemistry and sustainability, material science, chemical engineering and biotechnology
Renewable and Sustainable Energy Reviews	Elsevier	12.110	1364-0321	Renewable and sustainable energy such as bioresources, geothermal, hydrogen, etc.; give solution and support for the transition to low carbon future;
Energy and Environmental Science	Royal Society of Chemistry	30.289	1754-5706	Biochemical and biophysical science and chemical and mechanical engineering, energy conversion and storage
Biomass conversion and Biorefinery	Springer	2.602	2190-6815	Thermo-chemical, physico-chemical and bio-chemical conversion including preparation of biomass to produce energy end chemical products. Bioengineering, renewable Energy and Environmental Protection
International Journal of Energy Research	Wiley	3.741	1099-114X	Energy management, production, conversion, conservation, systems, technologies, applications and environmental impact.
Applied microbiology and biotechnology	Springer	3.530	0175-7598	Prokaryotic, eukaryotic cells, relevant enzymes and proteins; applied genetics and molecular biotechnology; genomics, proteomics.
Microbial Cell Factories	Springer	4.400	1475-2859	Microbial cells as producers of recombinant proteins and natural products, or as catalyzers of biological transformations

Bioresource Technology	Elsevier	7.539	0960-8524	Biomass, biological waste treatment, bioenergy, biotransformation, bioresource systems analysis, biofuels and thermochemical conversion of biomass

In case an author publishes an academic publication about the BioSFerA results and methodologies outside of the rules of the project, the lead partner can adopt measures from the removal of authorship to contact the publishing entity/ journal to correct or remove the publication.

4.3 General articles, ResearchGate and Zenodo profiles

In October 2021, BioSFerA project also opened a ResearchGate profile to give visibility to its research results within the scientific community (*Fig. 21*). Unfortunately, the ResearchGate policy was subjected to changes resulting in removal of all project accounts as available feature in the platform. Therefore, since April 2023 the BioSFerA project profile is no longer active

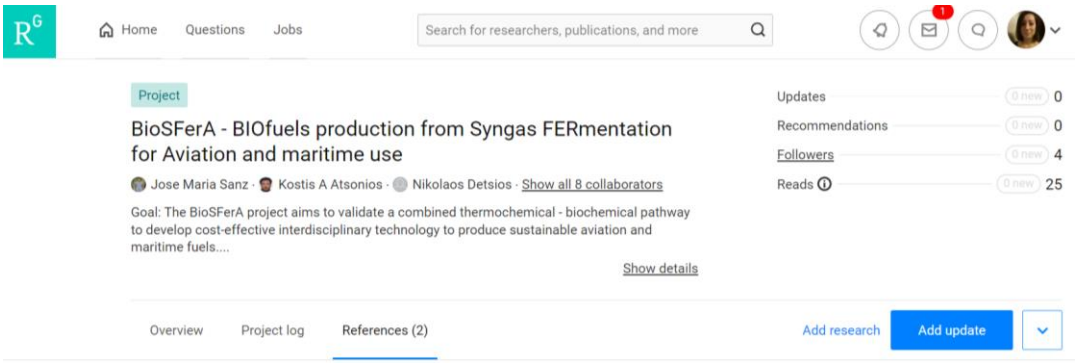


*Figure 24 BioSFerA ResearchGate profile – no l*onger active

Table 6 General articles at conferences and non-scientific magazines

a/a	Partner	Magazine / Source	Title	Authors	Type
1	KPRT	Biofuel Internationals	Setting the course for sustainable aviation and marine fuels	Maarten Van Haute, Konstantinos Atsonios	General article
2	CERTH	(Research Gate)	Screening of biogenic residues and setting up sustainable scenarios for commercial biorefineries around Europe	Vasiliki Gavidou, Nikos Detsios, Kostis A Atsonios, Grammelis Panagiotis	Conference paper
3	CERTH	(Research Gate)	Aviation and maritime biofuels production via a combined thermochemical/biochemical pathway:	Nikolaos Detsios, Leda Maragoudaki, Kostis A Atsonios,	Conference paper

			A conceptual design and process simulation study	Nikolaos Orfanoudakis	
4	ENVIPARK	Nuova Energia	Scarti vegetali e rifiuti per decarbonizzare navi e aerei	Paola Zitella, Marianna Franchino	General article
5	VTT	Project website	Fluidized bed gasification of wastes and syngas processing	Ville Nikkanen	Poster (conference)
6	CSIC	Project website	Lipase overexpression in Yarrowia lipolytica for direct biofuel production	Jorge Barriuso	Poster (conference)
7	ENVIPARK	Tecnologia &Innovazione	Scarti vegetali e rifiuti per decarbonizzare navi e aerei	Paola Zitella, Marianna Franchino	General article
8	CARTIF	Project website	Influence of acetate as main carbon source for lipid production via oleaginous yeast fermentation	Jose M Sanz Martìn	Poster (conference)
9	CARTIF	Project website	Two-stage biotechnological process to produce lipids from syngas for the synthesis of sustainable biofuels	Jose M Sanz Martìn	Poster (conference)
10	ENVIPARK	Project website	The production of biofuels for aircrafts and ships from waste and discards	Giorgia Pellegrino	Conference paper
11	ENVIPARK	Project website	Biofuels production from syngas fermentation for aviation and maritime use (BioSFerA): Recent advances from lab scale activities	Giorgia Pellegrino	Conference paper
12	CERTH	Project website	A comparative analysis and assessment of Dual Fluidized Bed and Chemical Looping Gasification: Design considerations for commercial use and applicability in BtL schemes	Nikolaos Detsios	Conference paper (joint publication with CLARA project)
13	CERTH	Project website	Triacylglycerides to marine and jet biofuel via hydrotreating	Sakis Dimitriadis	Poster (conference)
14	CERTH	Project website	Marine and jet biofuel production via hydrotreating of Triacyclglycerides	Sakis Dimitriadis	Poster (conference)
15	BBEPP	Project website	Acetate from Industrial Waste Gas as a Platform Intermediate	Stefano Rebecchi	Poster (conference)
16	BBEPP, VTT	Project website	Piloting of gasification and gas fermentation plants: BioSFerA Project	BBEPP, VTT	EERA Bioenergy Newsletter
17	KPRT + All	Biofuel International	BioSFerA reveals key results from a ground-breaking approach for advanced biofuel production – A success story	KPRT, CERTH, All	General article + email blast

18	CERTH	European Energy Innovation	A successful project implementation towards the deployment of Biomass-to-Liquid (BtL) technologies	CERTH	General article
19	CERTH	Energypress.gr	Το ΕΚΕΤΑ πρωταγωνιστεί στην ανάπτυξη νέων τεχνολογιών για την παραγωγή προηγμένων αεροπορικών και ναυτιλιακών βιοκαυσίμων (translate: EKETA plays a leading role in the development of new technologies for the production of advanced aviation and marine biofuels)	CERTH	General article
20	BBEPP	Temporarily confidential until final paper submission	Demonstrating pilot gas fermentation for acetate production from biomass-derived syngas streams	BBEPP	Poster (conference)

In accordance with the open access guidelines and the availability of the project results and research, the BioSFerA community has been created in Zenodo platform where all deliverables, scientific papers and project documents are gathered and free shared: https://zenodo.org/communities/biosferaproject The platform will be further updated in March/Aprile with last public deliverables.

Table 7 List of Zenodo documents

Title	Views	Downloads
Deliverable 3.3 Metabolic engineering of oleaginous yeasts for efficient acetate fermentation and medium & long chain TAGs production	26	40
Deliverable 3.2 Metabolic engineering of acetogenic bacteria for efficient syngas fermentation & acetate production	24	32
Deliverable 3.1 – Bench-scale gasification tests at TRL4	22	28
Deliverable 2.5 Full BioSFerA process basic definition	27	25
Deliverable 2.4 Determination of the main input parameters for the case studies	27	27
Deliverable D2.3 Analysis of selected feedstock	27	24
Deliverable D2.2 "Report on selected evaluation indicators	24	25

Deliverable D2.1 Stakeholders requirements and market needs	24	26
Deliverable D1.2 Data Management Plan	20	30
Integrating greenhouse gas capture and C1 biotechnology: a key challenge for circular economy	21	28
Recent Advances on Alternative Aviation Fuels/Pathways: A Critical Review	28	33
Design considerations of an integrated thermochemical/biochemical route for aviation and maritime biofuel production	23	31
Activated Carbons for Syngas Desulfurization: Evaluating Approaches for Enhancing Low-Temperature H2S Oxidation Rate	18	22

4.4 Events

Table 8 Events with BioSFerA participation

Type	Partner	Title	When	Format
Conference	CERTH	ECOS 2021	29/06/2021	Taormina (Italy)
Conference	CERTH	GCGW-21	03/08/2021	Online
Conference	KPRT	Downstream 4.0 Summit	27/10/2021	Online
Meeting	CERTH	5th H2020 Biofuels workshop CINEA	14-15/10/2021	Online
Conference	ENVIPARK	ECOMONDO	November 2021	Rimini (Italy)
Exhibition	GoodFuels	Bio360 Expo	30-31/03/22	Nantes (France)
Internal institution event	CERTH	CERTH lab ceremony	March 2022	Ptolemais (Greece)
Project conference	CERTH	BIOCON-CO2 Final Symposium	14-15/06/2022	Hybrid
Conference	VTT	International Freiberg Conference on waste gasification	19-21/09/2022	Freiberg (Germany)

Conference	CERTH	7th Conference of the Hellenic Solid Waste Management Association	28-29/09/2022	Athens (Greece)
Conference	CSIC	6th Applied Synthetic Biology in Europe (ASBE VI)	2-4/11/2022	Edinburgh
Joint workshop	ENVIPARK	Project presentation at the INDUSTRIAL&REPLICATION WORKSHOP, organised by GLAMOUR project at the ECOMONDO Exhibition	9/11/2022	Bologna (Italy)
Fair	ENVIPARK	ECOMONDO Exhibition – virtual stand of Environment Park	8-11/11/2022	Bologna (Italy)
Conference	CERTH	Biomass Day 2023	27/01/2023	Athens (Greece)
Exhibition	CERTH	Innovation Days 2023	07-09/02/2023	Greece
Conference	CARTIF	2nd Greenering International Conference	21-23/03/2023	Valladolid (Spain)
Conference	CERTH	RRB23	31/05 – 2/06/2023	Riga (Latvia)
Conference	CERTH	EUBCE 2023	5-8/06/2023	Bologna (IT)
Conference	ENVIPARK	EUBCE 2023	5-8/06/2023	Bologna (IT)
Conference	ENVIPARK	8TH AIGE-IIETA INTERNATIONAL CONFERENCE	15/06/2023	Torino (IT)
Conference	CERTH	10th International Conference on Sustainable Solid Waste Management	21-24/'6/2023	Chania (Greece)
Conference	CARTIF	XVII Congress of the Spanish Society of Biotechnology	17/07/2023	Madrid (Spain)
Conference	BBEPP	20th International Conference on Carbon Dioxide Utilisation	25-29/06/2023	Bari (IT)
Conference	CERTH	15th European Congress on Catalysis (EUROPACAT)	31/08/2023	Prague (Czech Republic)
Fair	ENVIPARK	POLLUTEC – Ecological Transition	10-13/10/2023	Lyone (France)
Fair	ENVIPARK	ECOMONDO – Green Technology and Transition	7-10/11/2023	Rimini (Italy)
Fair	RINA	KEY ENERGY – Energy Transition	28/02-01/03/2024	Rimini (Italy)
Conference	BBEPP	Carbon Recycling Network - 4th Annual Conference	25-27/03/2024	Manchester (UK)

Among the events and other dissemination activities initially planned, such as training days, BioSFerA Consortium decided to focus on the following workshops/joint workshops:

- "Advanced Technologies for Green Molecules Production", 4th May 2022. A workshop co-organized by BioSFerA, and other two EU funded ongoing projects (CO2SMOS & LIFE BIOMASS C+). It was hosted during the second day of the next GA meeting. Aim of the workshop was to present innovative technologies for green molecules (fuels and chemicals) and to offer the opportunity for networking in the sustainable biofuels and biochemicals production sector.
- "INDUSTRIAL&REPLICATION WORKSHOP", 9th November 2022, organized in the framework of the ECOMONDO Exhibition (Bologna, Italy). The workshop was organized by the GLAMOUR project and BioSFerA invited to present its results.
- "Bioenergy and renewable fuels projects for the revamping of the SET Plan", 6th June, organized by the FlexSNG project during the 31st European Biomass Conference and Exhibition EUBCE 2023 (Bologna, Italy).
- "Demonstrating sustainable value creation from industrial CO2 by its thermophilic microbial conversion into acetate"; 8th November 2023, Exploitation workshop organized by PYROCO2 project in ECOMONDO 2023 (Bologna, Italy).

4.4.1 BioSFerA Final Event

On the 20th of March 2024, the BioSFerA Final Event took place in Brussels. The event was organized at the CSIC Delegation facilities (62 Rue du Trône 1050 Ixelles Belgium) with the support of Environment as dissemination leader.

"Setting the course for aviation and marine fuels for the transport of tomorrow" was the title chosen to present activities and achievements reached by the BioSFerA Consortium during the morning meeting from 09:30 to 13:00. The agenda planned two first panels, giving introduction to the project's results, then a round table with guests performed (agenda here https://biosfera-project.eu/biosfera-final-event/):

BioSFerA
Biofuel for bioTravels

H2020-LC-SC3-2018-2019-2020
EUROPEAN COMMISSION
European Climate, Infrastructure and Environment Executive Agency (CINEA)

Biofuels production from Syngas Fermentation for Aviation and maritime use
Grant Agreement No 884208

BioSFerA Final Event Agenda

Setting the course for aviation and marine fuels for the transport of tomorrow

20th March 2024
Hybrid event (link for virtual attendees here)
Office of the Spanish National Research Council, Rue du Trône, 62, Brussels

Time (CET)	Topic	Speaker
9:30 – 9:45	**Registration**	
9:45 – 10:00	**Welcome & Project Overview**	Kostis Atsonios (CERTH)
10:00 – 10:45	**Biomass and waste valorisation: innovative model for EU waste conversion**	
	Biological studies at lab scale: selection of bacteria and yeasts	Jorge Barriuso Maicas (CSIC)
	Gas & liquid fermentation processes: Lab scale development	Jose Mª Sanz Martín (CARTIF)
	New efficient ways for TAGs extraction	Giorgia Pellegrino (ENVIPARK)
	Q&A; Poll 1	
10:45 – 11:00	**Coffee Break**	
11:00 – 11:45	**BioSFerA's scaling up for jet-fuel and marine diesel production**	
	Results of the pilot fermentation processes	Pedro Acuna Lopez (BBEPP)
	TAGs hydroprocessing and final products characterization	Sakis Dimitriadis (CERTH)
	BioSFerA scale up and impact assessment towards commercialization	Nikos Detsios (CERTH)
	Q&A; Poll 2	
11:45 – 12:45	**Round table: Biofuels market potential and EU energy transition from stakeholders' perspective**	Moderator: Jose Luis Garcia Lopez (CSIC)
	Market potential for advanced biofuels	Marilena Demetriou (FincoEnergies)
	European Commission as the key enabler towards advanced biofuels growth	Maria Georgiadou (EC DG RTD)
	Academia and new research projects and technology developments: the FUELPHORIA EU project	Piero Valmassoi (GIE)
	Large scale gasification based biorefineries: how technically feasible are?	Sumitomo SHI FW (Mohammad Ghazani)
	Converting refineries to sustainable transport fuels production plants: challenges and drivers	Xander de Jong (KPRT)
	Current policy, regulatory, and market information and the impact of associations to promote advanced biofuels	Leonidas Kanonis (EWABA)
	Q&A	
12:45 – 13: 00	**Wrap-up, poll results, BioSFerA add value & legacy**	Kostis Atsonios (CERTH)
13:00	**Light lunch offered to the attendees**	

Event organized by CERTH, BioSFerA Project Coordinator, Environment Park, Communication&Dissemination Project Referent and BioSFerA Consortium.

With support and space from CSIC, the Spanish National Research Council, Bruxelles delegation.

CSIC

Figure 25 BioSFerA Final Agenda

The role of the advanced biofuels in the decarbonisation strategy of the transport sectors and the market potentiality of the BioSFerA model have been discussed during the round table with biofuels value chain players coming from industry and research. The round table was moderated by Prof. Jose Luis Garcia Lopez, head of the Environmental Biotechnology group at CSIC, and it involved the following speakers: Marilena Demetriou – Project Researcher at FincoEnergies, Maria Georgiadou – European Commission Senior Expert – Renewable energy R&I policy, Piero Valmassoi – Project Manager at Greenovate! Europe, Teemu Nevalainen – Director, Solution Development at Sumitomo SHI FW, Xander de Jong – Principle Process Engineer Research & Development at Q8Research, Leonidas Kanonis – Director for Communications and Analysis at EWABA and BioSFerA's Advisory Board member.

Polls the presence of specialists from every step in the supply chain led to an interactive and animated the morning to involve the audience and to understand their own point of view on the general topic and on the BioSFerA's technologies presented along the day. Low-CO2 emissions, circularity, green transports, low-prices were just some of the advantages about the sustainable fuels in transport put in evidence by the polls results. High interest was even showed on the project's technologies, led by the two-stage biological syngas-to-lipids fermentation.

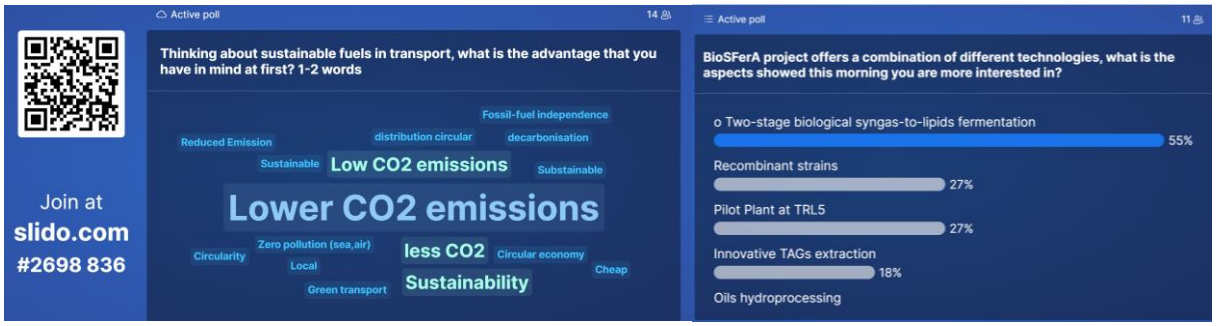


Figure 26 BioSFerA Final Event: polls and results

The final event was organised in hybrid format and was able to reach out around 40 attendees, where 18 were external people attending mainly online. Among them, the presence of the Advisory Board members, such as Q8 Aviation, Fly Green Alliance, Motor Oil Hellas, Athisa Biogeneración.

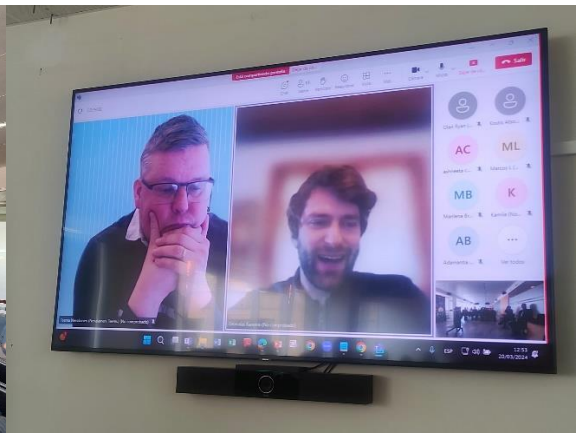


Figure 27 BioSFerA Final Event, 20th March 2024

4.5 Exploitation activities

This chapter refers to Task8.3 “Intellectual Property Rights (IPR) strategy and management”, WP8.

Reference document is the D8.2 “IPR Management Plan”. The deliverable identifies BioSFerA’s results, Key Exploitable Results (KERs) and preliminary Intellectual Property Rights forms to be finalised at the end of the project. D8.2 was updated at M34 (January 2023) internally, in order to provide a mid-term progress on BioSFerA’s results.

In the last six project’s month, an exploitation activity was also performed by both ENVIPARK and GoodFuels, responsible partners of the results’ exploitation and the TRL9 Roadmap respectively. Two workshops have been organised with the main goal to provide exploitation knowledge and data collection to be used as inputs for the KERs’ Exploitation Plan and TRL9 definition:

- **1st WORKSHOP – 5th of Dec, 23:** one hour workshop providing exploitation knowledge, tools and examples to the partners (*Fig. 28*). General exploitation’s objectives have been introduced, highlighting the importance to identify the exploitation plan - and the IPR form - for each KER to be used at the end and behind the project. The “KER Data Collection Table” was presented and shared to the partners. The table (*Fig. 29*) was meant to collect/update data regarding project’s results with exploitation purposes (e.g. Unique Selling Point, Alternative Solutions analysis etc.).

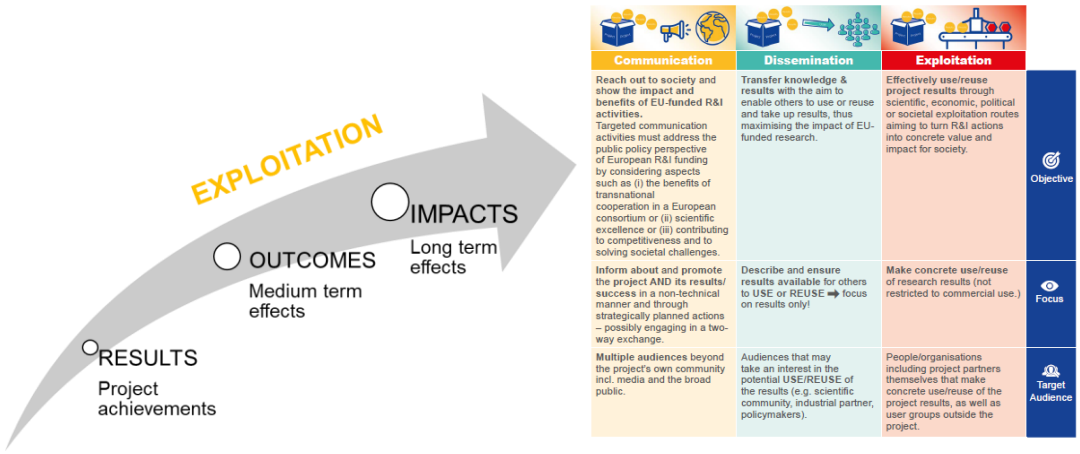


Figure 28 Examples of the 1st Exploitation Workshop contents (Communication, Dissemination, Exploitation[2])

KER name	Input
Problem	*Describe the problem you are addressing to satisfy the potential users. Consider that potential users are the people, companies, organisations, etc. that you expect will use the result (and generate an impact). When potential users use your results, they become your "Customers". They will be described in the rows below.*
Alternative solution/Market competitors	*Describe how your "customer" has solved the problem so far and current competitors in the market.*
Unique Selling Point USP - Unique Value Proposition UVP	*Describe the competitive advantages, the innovative aspects. What does your solution do better, what are the benefits considering what your user/customer wants, how does your solution solve his/her problem better than alternative solutions, what distinguishes the KER from the competition / current solutions?*

Figure 29 KER Data Collection Table Template example

- [2] https://intellectual-property-helpdesk.ec.europa.eu/regional-helpdesks/european-ip-helpdesk_en

2nd WORKSHOP – 25th of Jan, 24: one hour workshop to further classify and select the main exploitable results **needed for the TRL9 roadmap development** in collaboration with the entire Consortium. The discussion led to go deepen the result's information already collected through the KER Data Collection Table (no information are here reported due to confidential data). Single KER's Exploitation Plan was then defined by each responsible partners and reported in D7.4 TRL9 Roadmap (Confidential data), giving completion to the overall exploitation goals at project and results levels.

Refers to D7.4 for more information on the final exploitation strategy.

4.6 Evaluation and monitoring of communication and dissemination activities

WP 8 leader monitors and reports continuously about communication and dissemination activities, while all partners indicate specific initiatives undertaken to track them. *Table 12* reports internal communication targets to benchmark impacts and results: good results on the communication channels, where social media platform (LinkedIn specifically), played an important role during the dissemination activity; 7 out of 11 general articles have been published along the project, due to high cost of publication mainly, while 5 scientific papers have been published in energy journals as expected by the project proposal. However, at least other 5 papers are planned to be published after the end of project, giving continuity and evidence to the project's results.

Overall, good communication and dissemination KPI have been reach out by BioSFerA project and a stable followers' community was established along it.

Table 12 BioSFerA communication targets

Channel	Goal	Status 30/06/2023
Traditional media	11 articles in traditional media (one per each partner)	7
Scientific publications	10 scientific publications	6
BioSFerA Social media	300 Twitter and LinkedIn followers	555 Linkedin, 76 Twitter
	250 Tweets	194
	120 LinkedIn posts	220
BioSFerA Website statistics	400 visits per month (average)	300