



Bioenergy RESCoops e-Market environments – First

JANUARY 2022



www.becoop-project.eu



This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement no. 952930.

Project Acronym:	BECoop
Programme:	HORIZON2020
Topic:	LC-SC3-RES-28-2018-2019-2020
Type of Action:	Coordination and Support Action
Grant Agreement number:	952930
Start day:	01/11/2020
Duration:	36 months
Contact:	contact@becoop-project.eu

Document information

Document Factsheet	
Full title	D2.5: Bioenergy RESCoops e-market environments - First
Work Package	WP2
Task(s)	T.2.3
Authors (Organisation)	Jaime Guerrero (CIRCE)
Reviewers (Organisation)	Chris Merveille (GOI), Yago Goitia (GOI), Andreas Thaler (SEV), Nicole Hofer (SEV)
Date	31/01/2022

Document dissemination Level

Dissemination Level	
X	PU - Public
	PP - Restricted to other programme participants (including the EC)
	RE - Restricted to a group specified by the consortium (including the EC)
	CO - Confidential, only for members of the consortium (including the EC)

Document history

Version	Date	Main modification	Entity
v0.1	05/01/2022	Draft version distributed for partners' review	CIRCE
V0.2	24/01/2022	Internal quality review	GOI, SEV
V0.3	27/01/2022	Review by the project coordinator	WR
V1.0	31/01/2022	Final version submitted to the EC	WR

Legal Notice

The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the European Commission nor any person acting on behalf of the Commission is responsible for any use that may be made of the information contained therein.

© BECoop Consortium, 2020 - All rights reserved; no part of this publication may be translated, reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the written permission of the publisher or provided the source is acknowledged.

About

Over the last years, the EU has witnessed some remarkable steps in Renewable Energy (RE) deployment. However, at the same time, we see an increasingly uneven penetration of RE across the different energy sectors, with the heating and cooling sector lagging behind. Community bioenergy schemes can play a catalytic role in the market uptake of bioenergy heating technologies and can strongly support the increase of renewables penetration in the heating and cooling sector, contributing to the EU target for increasing renewable heat within this next decade. However, compared to other RES, bioenergy has a remarkably slower development pace in the decentralised energy production which is a model that is set to play a crucial role in the future of the energy transition in the EU.

The ambition of the EU-funded BECoop project is **to provide the necessary conditions and technical as well as business support tools for unlocking the underlying market potential of community bioenergy**. The project's goal is to make community bioenergy projects more appealing to potential interested actors and to foster new links and partnerships among the international bioenergy community.

The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 952930.

Project partners



Table of Contents

1.	Executive summary	1
2.	Introduction	2
3.	Methodology for the development of the e-market environment	3
	3.1 Employed methods to promote the platform.....	7
4.	e-market environment overview – a user guide.....	9
	4.1. User zone:.....	9
	4.2. Platform.....	10
	4.3. Needs and offers display: the e-Market.....	11
	4.4. Add / Modify entries	13
	4.5. Entry tab	14
	4.6. Suggestions.....	16
	4.7. Messages	18
	4.8. Profile	19
	4.9. My entries	20
5.	Expected outcomes	21
6.	Next steps.....	23
7.	Conclusions.....	24
8.	Annex I	25
9.	Annex II	26

List of Figures

Figure 1. Needed description for the uploading of a post	5
Figure 2. Categorization of the post.....	5
Figure 3. Profile information of the users	7
Figure 4. Data for registration of a new user	9
Figure 5. Privacy policy checkbox and register button.....	9
Figure 6. Login page.....	10
Figure 7. Main page in the platform.....	11
Figure 8. Top menu.....	11
Figure 9. List of offers and needs, and filter button.....	12
Figure 10. Filter categories and search button	13
Figure 11. Needed information for the creation of a new entry	14
Figure 12. Categories of the entries	14
Figure 13. Information of the selected need/offer	15
Figure 14. Information of the company owner of the post	15
Figure 15. Send a message box	16
Figure 16. Other posts from the same company.....	16
Figure 17. List of suggestions for a selected post.....	17
Figure 18. Options set of buttons.....	17
Figure 19. Paused offer	18
Figure 20. Message history.....	18
Figure 21. Example of a messages exchange	19
Figure 22. Main profile data	19
Figure 23. Description of the company's activities, logo and detailed description	20
Figure 24. Example list of the entries in a profile.....	20
Figure 25. Information required for pre-registration.....	26

List of Tables

Table 1. Number of registrations per stakeholder type	25
---	----

1. Executive summary

T2.3 of the BECoop project aims to create an e-market environment for connecting supply chain stakeholders in a virtual platform. It can work complementarily to the support services offered by the project, supporting the development and operation of community bioenergy and heating projects. In the next steps of the task, an educational and informational vector will be developed and included in the environment, so as to demonstrate to potential bioenergy RESCoops the various stakeholder interactions and activities that have to take place for setting up an effective and sustainable local supply chain and a community bioenergy project. In this regard, the purpose of this document is to provide an explanation of how the environment has been developed, what can be found in it, how it is used and what can be expected from it in the following months of the project. To achieve this objective, the organization of this deliverable is as follows:

- In section 2, an introduction can be found.
- In section 3, the methodology is explained that was followed for the development of the environment, the selection and categorization of the stakeholders that should be included, as well as the registration method, the information needed for it and the invitation process.
- In the fourth section, the environment is described, and all the information needed to take part in it is explained and defined. This section can be used as a guideline for the users. It covers all the sections included in the environment in a step-by-step approach.
- The next chapter explains what are the expected outcomes or results that can be obtained using this platform. What an external user can obtain or how he/she can benefit from the use of this newly developed platform.
- Subsequently, the approach for the next steps and the activities that are going to take place during the next months of the task are presented.
- Lastly, a set of conclusions is proposed, regarding the aim of the e-market environment, its dynamic operation, and the active collaboration between the partners to populate this environment with relevant actors from the bioenergy sector.

2. Introduction

In energy communities, citizens jointly own and participate in renewable energy and energy efficiency projects. Communities like these take collective and citizen-driven energy actions that will move citizens to the forefront of a clean energy transition. Energy communities are one of BECoop's main focus points, and its ambition is to foster a broad deployment of bioenergy technologies in the heating sector across Europe by providing all the necessary conditions and support tools for unlocking the underlying market potential of community bioenergy.

A number of tools will be developed under the BECoop project to improve the situation of this bioenergy sector within the European Community. In this sense, the e-market is considered to be a valuable tool for aiding the deployment of bioenergy technologies in the heating sector. An e-market environment is a web portal, in which registered users can post and offer their products and needs. In this sense, this concept has been adapted to the bioenergy and energy community sector, in order to provide users with a web portal in which they can post their offers or demands for products, across the whole of Europe, and regarding different types of services.

Specifically, the e-market environment described in this document is a contact platform, which will also include an educational or informational section, that will help boost local bioenergy supply and demand, mobilizing citizens around existing or new community bioenergy projects or increase their feasibility by identifying providers of technical, business, financial, or community model solution providers. These objectives will be achieved by helping the relevant actors and stakeholders to keep in touch, providing a network for posting their offers and needs related to the sector, as well as the pilot initiatives identified in the scope of the project and all the related tasks, and by presenting the various stakeholder interactions that should take place for setting up and effective and sustainable supply chain in a graphic way. This tool will be actively curated during its deployment and functioning and adapted to the BECoop cases thanks to the analysis performed.

By using the BECoop support services and tools, energy communities and authorities will be able to mobilize citizens around existing or new community bioenergy initiatives, boost local bioenergy demand by improving its image and social acceptance, and increase the feasibility of their endeavours by identifying suitable technical, business, and financial solutions, as well as by pooling expertise and partnerships from the wider EU bioenergy ecosystem.

Currently, in the e-market environment, 63 participants have already registered. The more participants take part in it, the bigger variety of offers and needs will be broadcasted, answering, this way, to a wider range of necessities and demands around community bioenergy projects. For the platform to reach its maximum impact, a wider promotion of its added value is required and will be carried out by all members of the BECoop project.

Participants' evaluation and feedback will constitute essential input for enhancing and improving the platform's usability. In a parallel, the educational and informative features, also derived from the consortium partners' knowhow, are now being developed and will soon be hosted online in the platform.

By the time this deliverable is written, a beta version is online while a stable platform version expected to be fully operational by end of February 2022.

3. Methodology for the development of the e-market environment

The first step in the development of the e-market environment was to define the concept of the platform in a way that can satisfy the needs of its users, by establishing effective contacts with other members of the supply chain. With this regard, the main objective had to be kept in mind: offer the BECoop cases a virtual environment for biomass heating and supply chains. This environment will be useful not only for the BECoop cases, but for stakeholders in a European level. For this, it has been decided that a platform where registered users can post their offers or necessities was the most suitable solution. This way, when a member of an energy community, cooperative, or RESCoop needs a product or service related to the bioenergy value chain, a post can be created, specifying the particular aspects of their request. In the same way, if they want to offer a product or service, they can publish it in the environment to spread out their activities, so they can be contacted by other members of the bioenergy community that might be interested in them. To summarize, the posts are firstly classified into two types according to this initial differentiation: offers or needs.

It is worth mentioning that the platform is designed in a way that allows users to upload the number of posts desired, but it is not necessary to create an account for each post: An account is created to represent a certain user (company, organization, community, etc.), and from this account, the number of posts created (being needs or offers, indistinctly) is up to the user.

But it is not only restricted for members of an energy community, cooperative or RESCoops; all the members involved in the bioenergy or renewable energy value chain can take part in the environment. The more members of this value chain get to register and participate in the platform, the more valuable this will be. This way, we can create effective interactions among the users and help to spread the activities or products offered by those taking part in it, thus supporting the market uptake and final deployment of bioenergy, renewable energy, or community energy initiatives.

As a way of involving as many users as possible, so that the environment becomes populated with a wide variety of posts (offers and needs), it has been designed to be user-friendly, easy to use and intuitive, while maintaining the aesthetics of the BECoop project. Hence, it is not necessary to have a deep understanding of how the platform works, and the abandonment of its use due to a lack of understanding or very complicated procedures can be avoided, thus achieving a long-lasting platform, suitable for its primary purpose: supporting the market uptake of bioenergy and community energy projects.

It was also decided that for participating in this environment, a registration process should be included to also monitor the people taking part in the platform.

The main purpose of the eMarket platform is to act as a virtual environment for biomass heating and supply chains for informative and educational purposes.

The next step in the development of the platform was to select the categories of stakeholders that should be engaged, and how they were going to be classified. In this sense, the main goal was to include all the members of the value chain: from the first stages (production, pre-treatment, etc.), through the intermediate ones (storage, distribution, other treatments), to the final stakeholders (mainly focused on end users) as well as those whose activities may be transversal to the whole chain (as, for example research activities, investing or activities related to public entities that can affect different parts of the chain). This way, the final stakeholder categorization, which need to be attracted, is the following:

- Biomass owners
- Biomass Management companies
- Equipment manufacturers
- ESCOs and installers
- Cooperatives / Energy communities / RESCoops
- Investors
- Research Centres / Universities
- Public institutions
- End Users (as consumers of bioenergy)

All the stakeholders taking part in the value chain are represented in the list creating a simple interface that allows to differentiate all the stages of it and thus the stakeholders involved in them simply and effectively.

Continuing with the development of the environment, the necessity of interaction among the participants was also addressed. Towards this aim, the consortium agreed that the platform shall include an internal instant messaging solution. This way, the environment facilitates the direct interaction and communication between stakeholders, creating a new communication channel. It is also possible to customize how notifications are received: only in the web or also via email.

This means of communication inside the platform will also allow the project to monitor the interactions that have taken place – by checking the stakeholders involved in the interaction, but not the content of it. This way, the project will be aware of the status of compliance of certain KPIs, such as *KPI 13 – Stakeholders receiving the BECoop services > 400*.

The final step was to agree on the content of each of the posts. This process followed a similar path to the earlier steps--drafting contents and discussing them with the consortium. The final contents to be included in each post, and the contents required for the company/organization registration are the following:

- Description of the entry (see Figure 1)
 - Type: Offer / Need
 - Date

- Active: Yes / No. Here it can be decided if your post is to be visible in the environment or not; this way, your entry can be paused if needed, and it will remain created but other users won't be able to see it.
- Name of the post
- Description of the post
- Email notifications checkbox.

Description

Type: Offer (dropdown) Date: dd/mm/yyyy (calendar icon) Active: Yes (dropdown)

Offer name (text input)

Description: Offer description (text input)

☒ Receive notifications by email

Figure 1. Needed description for the uploading of a post

- Figure 2):
 - Area of action: Countries where the user offers or needs the activities posted
 - Type of stakeholder: selection of the stakeholders to which the entry is directed
 - Categories: Type of solutions offered or needed

Area of action

All of them (button)

<input type="checkbox"/> Austria	<input type="checkbox"/> Croatia	<input type="checkbox"/> Greece	<input type="checkbox"/> Latvia	<input type="checkbox"/> Hungary	<input type="checkbox"/> Italy
<input type="checkbox"/> Belgium	<input type="checkbox"/> Denmark	<input type="checkbox"/> France	<input type="checkbox"/> Portugal	<input type="checkbox"/> Malta	<input type="checkbox"/> Slovenia
<input type="checkbox"/> Estonia	<input type="checkbox"/> Cyprus	<input type="checkbox"/> Germany	<input type="checkbox"/> Ireland	<input type="checkbox"/> Lithuania	<input type="checkbox"/> Netherlands
<input type="checkbox"/> Romania	<input type="checkbox"/> Spain	<input type="checkbox"/> Bulgaria	<input type="checkbox"/> Czech Republic	<input type="checkbox"/> Finland	<input type="checkbox"/> Luxembourg
<input type="checkbox"/> Poland	<input type="checkbox"/> Slovakia	<input type="checkbox"/> Sweden			

Type of stakeholder

<input type="checkbox"/> Biomass owners	<input type="checkbox"/> Biomass Management companies	<input type="checkbox"/> Equipment manufacturers
<input type="checkbox"/> ESCOs and installers	<input type="checkbox"/> Cooperatives / Energy communities / RESCoops	<input type="checkbox"/> Investors
<input type="checkbox"/> Research Centers / Universities	<input type="checkbox"/> Public institutions	<input type="checkbox"/> End Users (as consumers of bioenergy)

Categories

<input type="checkbox"/> Biomass products	<input type="checkbox"/> Technical support services	<input type="checkbox"/> Logistics / supply chain activities or advice
<input type="checkbox"/> Business plans / management activities	<input type="checkbox"/> Financial advice or activities	<input type="checkbox"/> Final consumer advice
<input type="checkbox"/> Bioenergy		

ADD ENTRY (button)

Figure 2. Categorization of the post

- Contents required for company/organization registration (see Figure 3):
 - Main data
 - i) Name of the company/organization
 - ii) Name of the contact person
 - iii) Position in the company
 - iv) Address
 - v) Country
 - vi) Email
 - vii) Password and password confirmation
 - viii) Generate a new password button: This was proposed initially in order to provide a random password to users, but has been agreed to be taken off, so it won't be present in the final uploaded version.
 - Social media: Here, the user can include all the relevant social media where its company is active.
 - i) Website
 - ii) Facebook
 - iii) Twitter
 - iv) LinkedIn
 - Description of the company
 - i) Logo: logo of the company, a photo can be uploaded here.
 - ii) Brief description of the company's activities: Quick overview on what the profile owner activities are.
 - iii) Detailed description: A more detailed description regarding the activities of the owner of the post.

Main data

Name of the company / Organization

Email

Name of the contact person

Password

Position in the company

Repeat Password

Address

Country

Generate New Password

Social media

Website URL: <https://www.tecnomediadigital.com>

Twitter

Facebook

LinkedIn

Description

Logo

Seleccionar archivo Ningún archivo seleccionado

Brief description of the company's activities

Please write here a brief description of the company's activities

Detailed description

Please describe your entry

UPDATE

Figure 3. Profile information of the users

3.1 Employed methods to promote the platform

The next step in the development of the e-market environment was to build the methodology to reach as many participants as possible. This purpose was established to achieve a wide deployment and use of the environment: the more participants engaged in the platform, the richer this will be, and consequently the more useful it will result to the users in it, as it would offer more and more varied solutions in the value chain. If the platform is useful and gets to widespread use, the more interested stakeholders will be to take part in it, this way making it richer in a virtuous cycle. So, with this purpose in mind, it was agreed with the stakeholders to proceed as follows:

In the first round of contacts, it was agreed that a registration template would be created, in order to get to pre-register some stakeholders interested to take part in the environment. These registrations were made before the launch of the web environment, so once this is deployed, it will already be pre-populated. What is to be achieved with these actions, is an early impact, guaranteeing that the platform is being used and useful from the very beginning.

In the first stage, before the environment deployment, the template has been distributed through the contacts network of the members of the project and the contact network of the BECoop project itself. Thus, by the time this deliverable will be written, a total number of 63 registrations will have already been achieved. The registered users and their categories are shown in Annex I.

The initial idea was to get the interested users to register by themselves in the environment, as has been shown previously, but since the environment is not deployed yet, this solution was not possible. In that sense, a *Google Forms* template had been created, to be distributed among the network of the partners, as has been commented before. To achieve a wider reach, the template has been translated to the pilot languages of the project (Polish - WUELS, Greek – ESEK, Spanish - GOI and Italian - FIPER) to facilitate the registration of the users. Once the users got to register in their pilot languages, the responsible partner for the translation, translated back their entries to English. In the future, it will be considered whether the whole environment should be translated to the pilot languages or whether entries should be accepted in those languages, if this is deemed necessary for wider use of the platform.

The information gathered by the *Google Forms* template is the same as the one mentioned in the section before but is grouped in only one template instead of various sections (offer/need + organization information).

The full template can be found in the following link and is shown in Annex II.



<https://forms.gle/tWw4jqBnYjpYhR5j8>

By the time that a stable version of the e-market environment is online, stakeholders will be able register by themselves in the platform.

By publicising and disseminating the creation of the platform in social media, workshops/events, and by word of mouth, it is expected to reach much more stakeholders that will be interested in participating in the tool, and thus registering in it. Regardless, the spreading out of the platform will be continued by the partners among their contact networks.

By the time this report is written, 502 total contacts were made by all consortium partners, achieving the number of 62 registrations mentioned before.

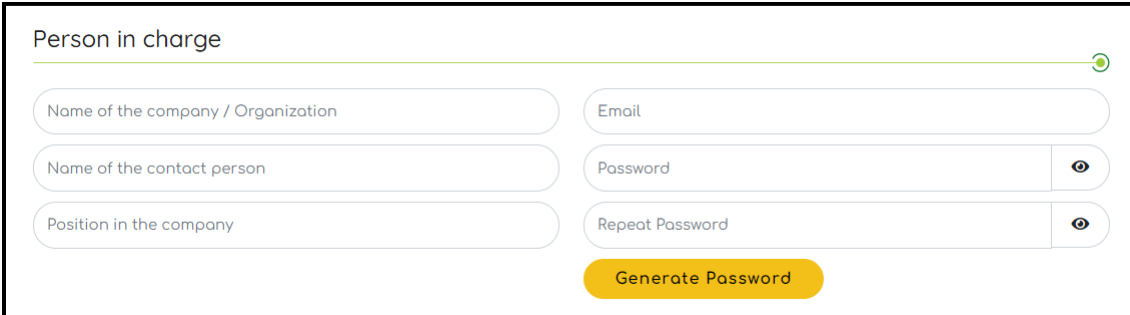
4. e-market environment overview – a user guide

In the following lines, a quick overview of how the tool has been designed, what are the sections composed of and how a user can navigate through it are provided.

4.1. User zone:

- New user

From the registration form, it is needed to fill in all the form fields and accept the GDPR declaration.



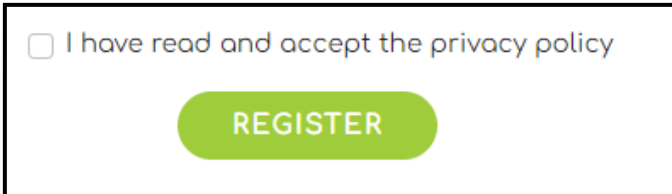
The registration form is titled "Person in charge" and includes a progress indicator. It contains the following fields:

- Name of the company / Organization
- Email
- Name of the contact person
- Password (with a visibility toggle)
- Position in the company
- Repeat Password (with a visibility toggle)

A yellow "Generate Password" button is located at the bottom right of the form.

Figure 4. Data for registration of a new user

Once the entire form has been filled in and clicked on the register button:



This section contains a checkbox for the privacy policy and a green "REGISTER" button.

☐ I have read and accept the privacy policy

REGISTER

Figure 5. Privacy policy checkbox and register button

An email is sent to the email address configured in the account, with the user account activation link. Once the link is clicked, the user is activated on the platform. Once activated, log in is possible.

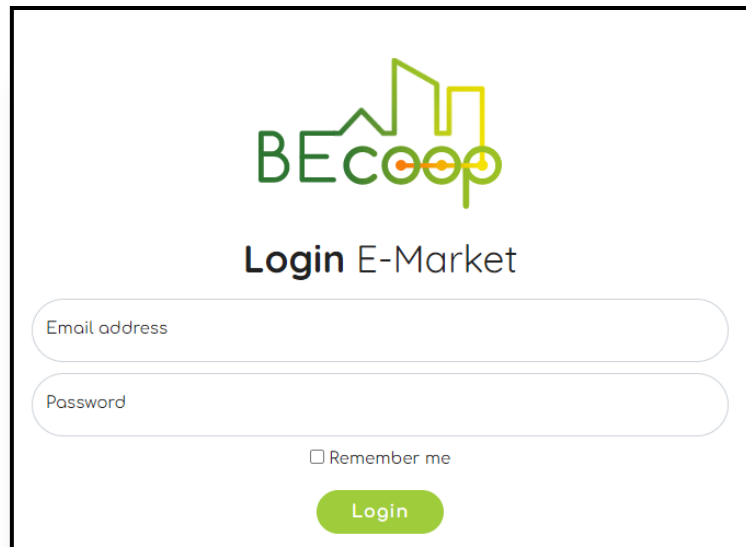
The image shows a login page for the BECoop E-Market. At the top center is the BECoop logo, which consists of the text 'BECoop' in a green sans-serif font, with a stylized green and yellow line graphic above the 'o's. Below the logo is the text 'Login E-Market' in a bold, black sans-serif font. Underneath this text are two rounded rectangular input fields. The first field is labeled 'Email address' and the second is labeled 'Password'. Below the password field is a checkbox labeled 'Remember me'. At the bottom center is a green rounded rectangular button with the word 'Login' in white text.

Figure 6. Login page

4.2. Platform

Once logged in, the main home page loads, which shows direct access to the different sections of the platform:

- eMarket
- Suggestions
- Messages
- Profile

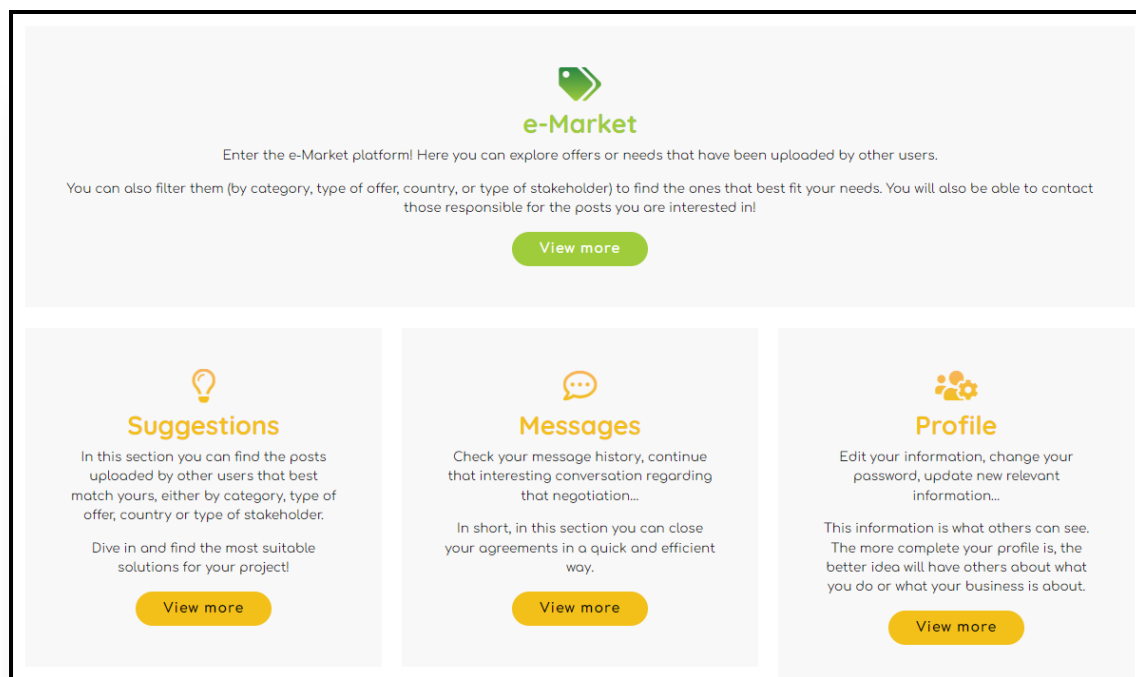


Figure 7. Main page in the platform

These sections are also placed in the top menu. Also, throughout the platform, in the top right corner, a quick access button to add an entry can be found. In the case of the fourth button (name of the user), the “my entries” section can be accessed.

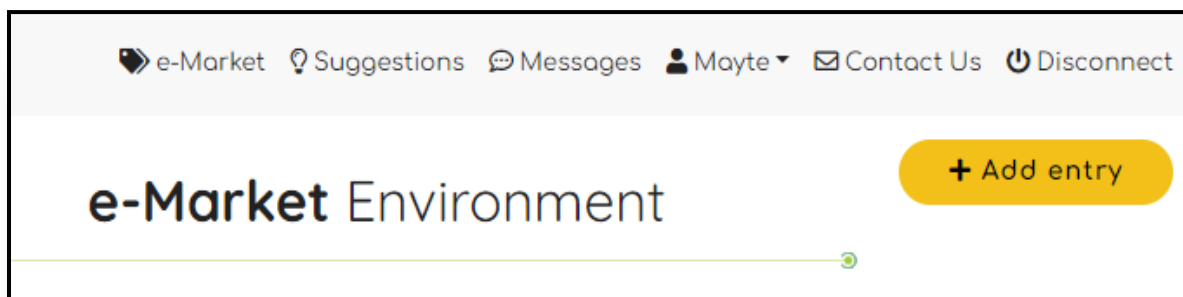


Figure 8. Top menu

4.3. Needs and offers display: the e-Market

In this section a list of all the offers and needs available on the platform can be explored.

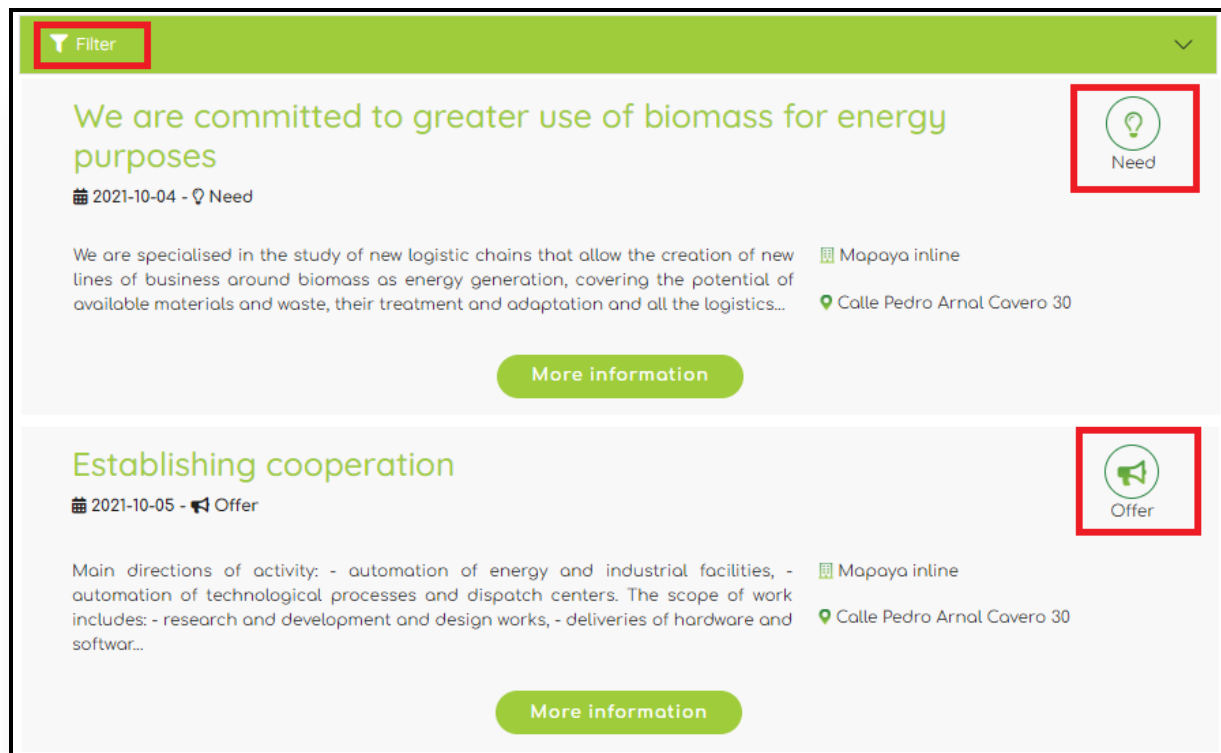
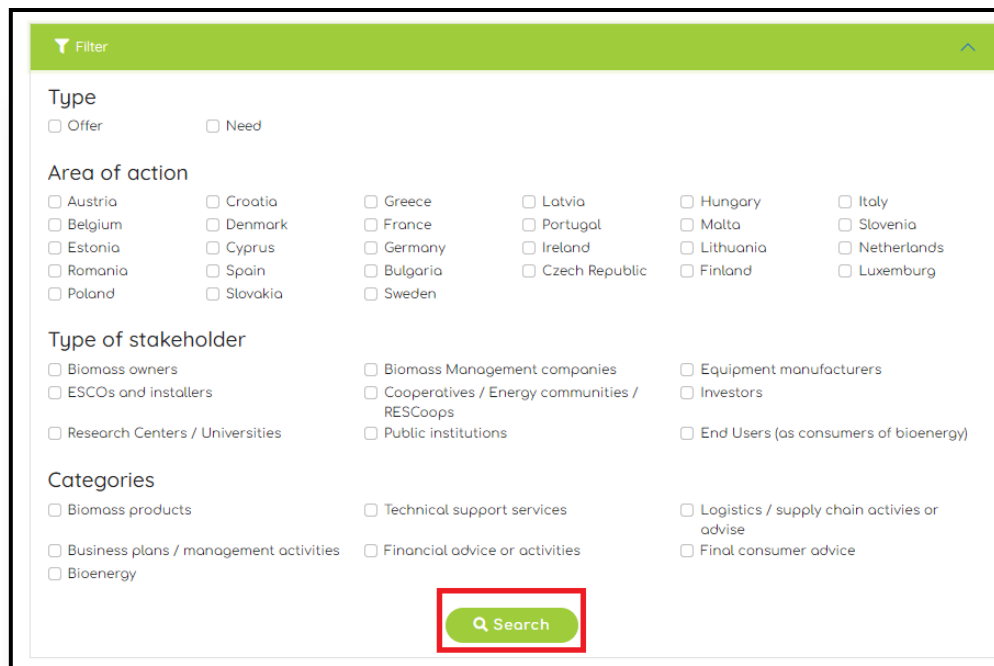


Figure 9. List of offers and needs, and filter button

The “more information” button is helpful if the offer/need is interesting. By clicking it, it will give access to the complete entry file.

There is also a drop-down tab, by which a filter can be applied: type, area of action, stakeholder, categories. One or several options can be selected.



The screenshot shows a web interface for filtering entries. At the top is a green bar with a 'Filter' icon and an upward arrow. Below this, the interface is organized into several sections, each with a title and a list of checkboxes:

- Type:**
 - ☐ Offer
 - ☐ Need
- Area of action:**
 - ☐ Austria
 - ☐ Belgium
 - ☐ Estonia
 - ☐ Romania
 - ☐ Poland
 - ☐ Croatia
 - ☐ Denmark
 - ☐ Cyprus
 - ☐ Spain
 - ☐ Slovakia
 - ☐ Greece
 - ☐ France
 - ☐ Germany
 - ☐ Bulgaria
 - ☐ Sweden
 - ☐ Latvia
 - ☐ Portugal
 - ☐ Ireland
 - ☐ Czech Republic
 - ☐ Hungary
 - ☐ Malta
 - ☐ Lithuania
 - ☐ Finland
 - ☐ Italy
 - ☐ Slovenia
 - ☐ Netherlands
 - ☐ Luxembourg
- Type of stakeholder:**
 - ☐ Biomass owners
 - ☐ ESCOs and installers
 - ☐ Research Centers / Universities
 - ☐ Biomass Management companies
 - ☐ Cooperatives / Energy communities / RESCoops
 - ☐ Public institutions
 - ☐ Equipment manufacturers
 - ☐ Investors
 - ☐ End Users (as consumers of bioenergy)
- Categories:**
 - ☐ Biomass products
 - ☐ Business plans / management activities
 - ☐ Bioenergy
 - ☐ Technical support services
 - ☐ Financial advice or activities
 - ☐ Logistics / supply chain activities or advise
 - ☐ Final consumer advice

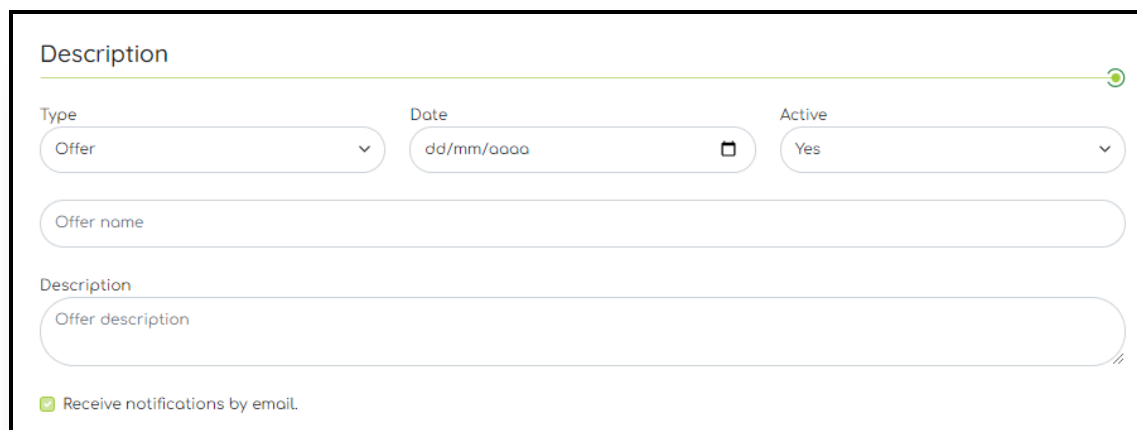
At the bottom center, there is a green button with a magnifying glass icon and the text 'Search', which is highlighted by a red rectangular box.

Figure 10. Filter categories and search button

4.4. Add / Modify entries

From the “add entry” section, new entries in the environment can be created directly:

- Selection of type of entry: Offer / Need
- Date of creation
- Active: Yes / No (This field refers to whether the user wants its entry to be paused or be directly available in the environment)
- Name of the entry
- Description
- Checkbox: if the creator of the offer wants to be notified of messages received for that entry



Description

Type: Offer (dropdown) Date: dd/mm/yyyy (calendar icon) Active: Yes (dropdown)

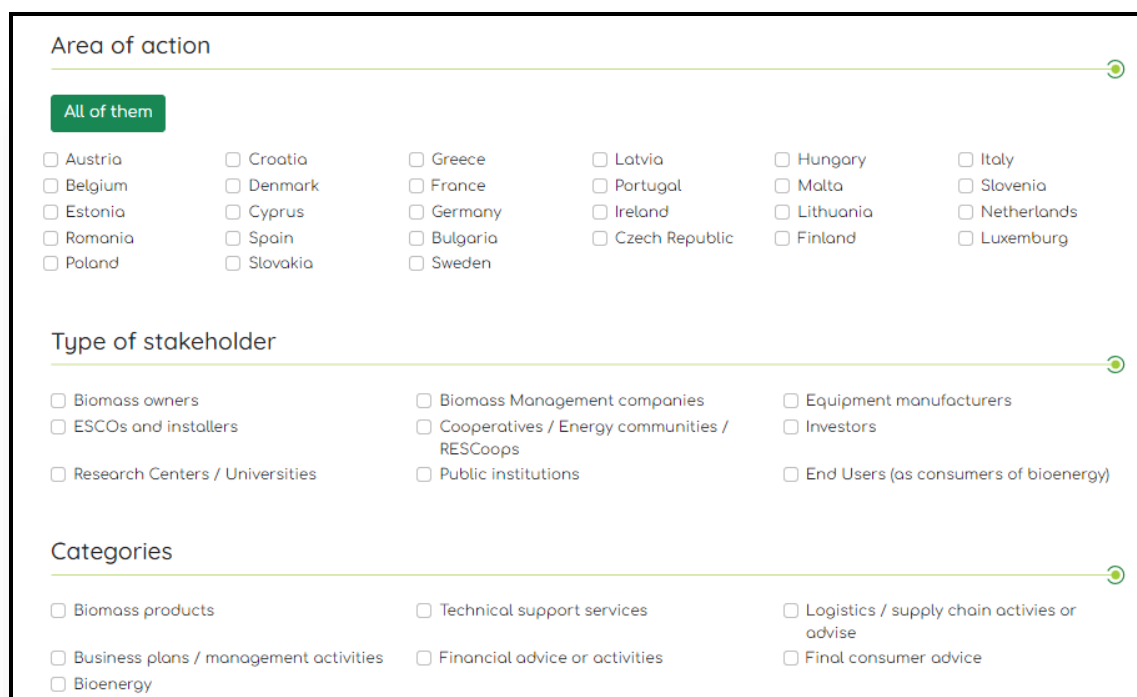
Offer name (text input)

Description: Offer description (text area)

☒ Receive notifications by email.

Figure 11. Needed information for the creation of a new entry

It is needed to tick at least one of the options for: areas, stakeholder, and categories.



Area of action

All of them (button)

<input type="checkbox"/> Austria	<input type="checkbox"/> Croatia	<input type="checkbox"/> Greece	<input type="checkbox"/> Latvia	<input type="checkbox"/> Hungary	<input type="checkbox"/> Italy
<input type="checkbox"/> Belgium	<input type="checkbox"/> Denmark	<input type="checkbox"/> France	<input type="checkbox"/> Portugal	<input type="checkbox"/> Malta	<input type="checkbox"/> Slovenia
<input type="checkbox"/> Estonia	<input type="checkbox"/> Cyprus	<input type="checkbox"/> Germany	<input type="checkbox"/> Ireland	<input type="checkbox"/> Lithuania	<input type="checkbox"/> Netherlands
<input type="checkbox"/> Romania	<input type="checkbox"/> Spain	<input type="checkbox"/> Bulgaria	<input type="checkbox"/> Czech Republic	<input type="checkbox"/> Finland	<input type="checkbox"/> Luxembourg
<input type="checkbox"/> Poland	<input type="checkbox"/> Slovakia	<input type="checkbox"/> Sweden			

Type of stakeholder

<input type="checkbox"/> Biomass owners	<input type="checkbox"/> Biomass Management companies	<input type="checkbox"/> Equipment manufacturers
<input type="checkbox"/> ESCOs and installers	<input type="checkbox"/> Cooperatives / Energy communities / RESCoops	<input type="checkbox"/> Investors
<input type="checkbox"/> Research Centers / Universities	<input type="checkbox"/> Public institutions	<input type="checkbox"/> End Users (as consumers of bioenergy)

Categories

<input type="checkbox"/> Biomass products	<input type="checkbox"/> Technical support services	<input type="checkbox"/> Logistics / supply chain activities or advise
<input type="checkbox"/> Business plans / management activities	<input type="checkbox"/> Financial advice or activities	<input type="checkbox"/> Final consumer advice
<input type="checkbox"/> Bioenergy		

Figure 12. Categories of the entries

4.5. Entry tab

Once in the eMarket, a complete list of the posts that respond to the selected filters are shown, as explained before. Clicking in the “more information button”, that can be seen in Figure 9, the full description of the post can be explored, as well as all the categories to which it belongs. This full description can be seen in Figure 13.

Description

2021-10-05 - Need

Des del clúster també estem desenvolupant una eina pilot per al projecte europeu auroral, on proposem la digitalització de la cadena de valor de la biomassa agrícola i forestal en la zona del Penedès


Spain,

Logistics / supply chain activities or advice,

Biomass owners, Biomass Management companies, Equipment manufacturers, Cooperatives / Energy communities / RESCoops,

Figure 13. Information of the selected need/offer

On the right side, the information of the company that has added that entry can be found.



Mapaya inline

Website f in t

Lorem ipsum is simply dummy text of the printing and typesetting industry...

Lorem ipsum is simply dummy text of the printing and typesetting industry...

Mapy

Mapaya inline

Calle Pedro Arnal Covera 30

Send a message

Figure 14. Information of the company owner of the post

In case the entry is of interest to the user, a message can be sent directly to the originator of the entry by clicking on the “send a message” button.

The image shows a 'Send a message' dialog box. It has a yellow header bar with the text 'Send a message' and a close icon (X). Below the header, there are two input fields: 'Subject' and 'Message'. The 'Message' field is a larger text area with a double-slash icon at the bottom right. At the bottom of the dialog, there are two buttons: a red 'Close' button and a green 'Send message' button.

Figure 15. Send a message box

At the bottom of the tab, a list of entries from the same organisation can be found:

The image shows a section titled 'Offers from the same company' with a yellow header bar. Below the header, there are three cards. Each card has a title, a date, a brief description, and a 'See more' button. The first card is titled 'Establishing cooperation' with the date '2021-10-05'. The second card is titled 'Colaboració con la herramienta' with the date '2021-10-05'. The third card is titled 'Straw energy' with the date '2021-10-04'. Each card also has a 'See more' button at the bottom.

Figure 16. Other posts from the same company

4.6. Suggestions

In the list of suggestions, a list of user entries may be found. These suggestions are based on the categories that are common to the user's post. Below it, a drop-down menu will appear if an entry from another company matches that of the user. If the drop-down menu is opened, all of the entries will become visible (Figure 17). With the "view more" button, the file of that entry will be accessed, and from the orange button (with the message icon), a quick message to the originator of that entry will be sent.

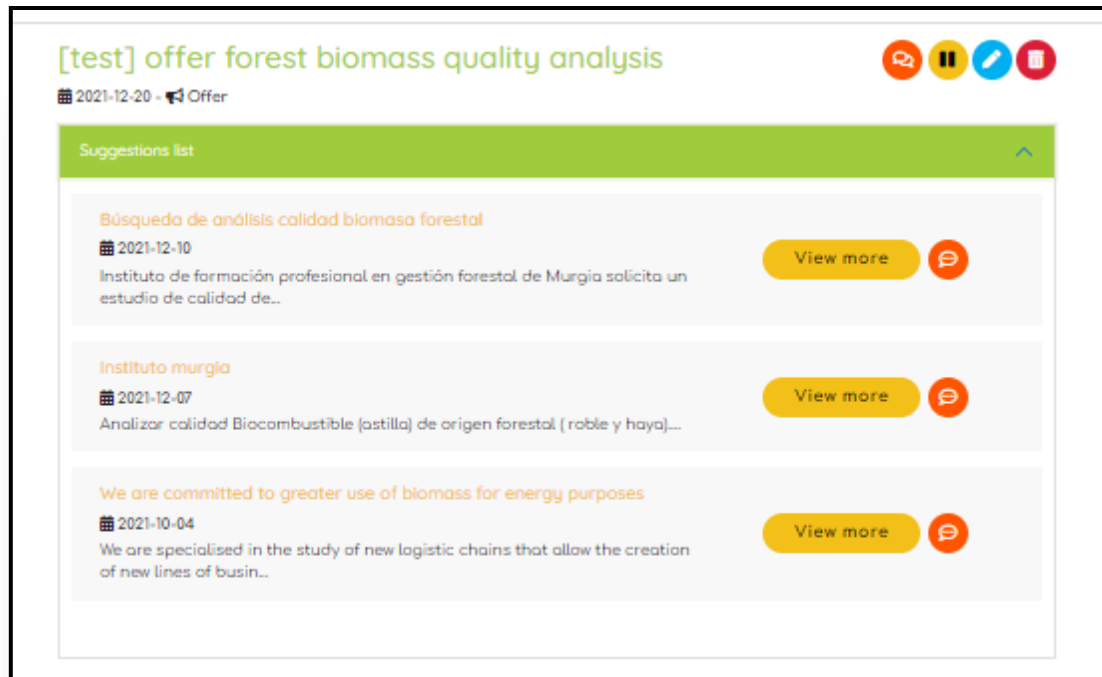


Figure 17. List of suggestions for a selected post

Another set of buttons can also be seen in the right of the title of the users' entry. These buttons have different functions:



Figure 18. Options set of buttons

- Orange icon: View the list of conversations for this entry.
- Yellow icon: Pause or re-activate the entry (it will stop being shown, but the entry will not be deleted). There can be a need to hide an entry without deleting it, for example, if it is not needed at the moment, but may become necessary in the future.
- Blue icon: edit data for the selected entry
- Red icon: delete entry

If an entry is paused, it will appear in the list coloured in yellow and will appear as "PAUSED", and the yellow button will change its colour to green and its icon to a usual "play" icon, as shown:

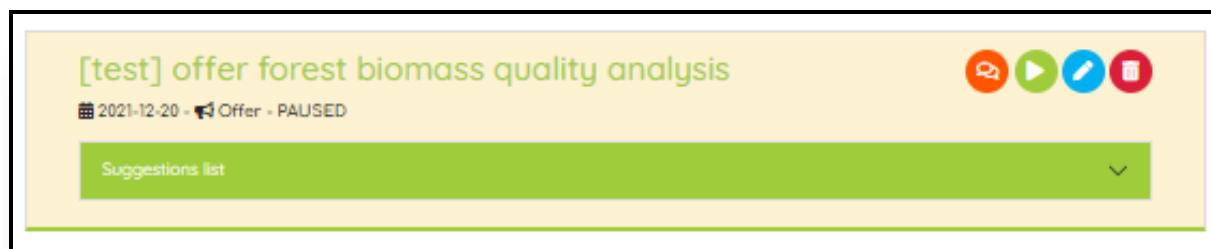


Figure 19. Paused offer

4.7. Messages

This section contains the history of messages, in which all the conversations held between a certain user and other participants are shown. It has a quick search engine to find messages. And a button to access the complete conversation:

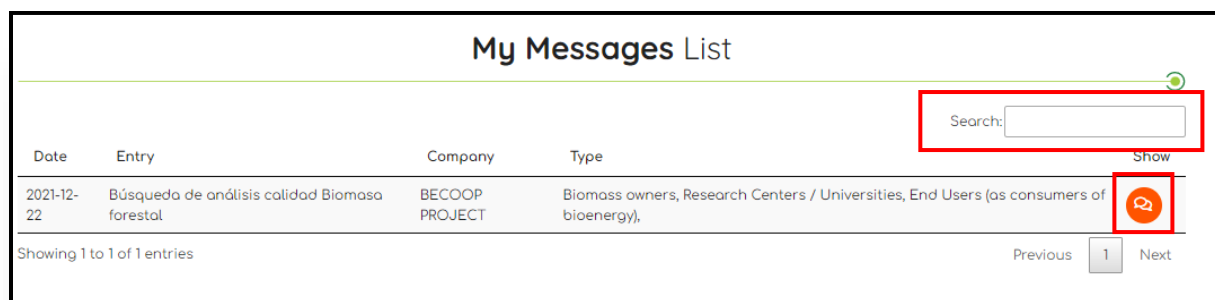


Figure 20. Message history

In the full conversation, the name of the entry, the name of the company with which the chat has been created, and the entire conversation can all be seen. In the bottom part, new messages can be written.

The screenshot shows a chat window titled "BECOOP PROJECT - Fundación Circe". It contains three messages in a sequence: a green bubble with a greeting and interest in biomass analysis, a green bubble asking to chat, and a yellow bubble responding with a question about the type of analysis. Below the messages is a "Send a message" section with input fields for "Subject" and "Message", and a green "Send message" button.

Figure 21. Example of a messages exchange

4.8. Profile

It is possible to change data from the user entered in the registration process in the profile section. The information of the company can also be completed.

The screenshot displays a profile editing form. The "Main data" section includes input fields for "Name of the company / Organization" (filled with "jguerrero@fcirce.e"), "Name of the contact person", "Position in the company", "Address", and "Country". It also features "Password" and "Repeat Password" fields with toggle icons, and a yellow "Generate New Password" button. The "Social media" section below has input fields for "Website URL" (filled with "https://www.tecnomediadigital.com"), "Facebook", "Twitter", and "LinkedIn".


Figure 22. Main profile data

Description

Logo

Seleccionar archivo

Ningún archivo seleccionado



Brief description of the company's activities

Esta es la descripción de las actividades

Detailed description

Esta es la descripción

Figure 23. Description of the company's activities, logo and detailed description

4.9. My entries

List with all the entries that have been registered, whether they are offers or needs, from where they can be managed. A search engine is available to filter the entries.





My Entry List							
<div>+ Add entry</div> <div>Search: <input type="text"/></div>							
Id	Date	Type	Name of the offer	Messages	Start/Pause	Edit	Delete
13	2021-12-20	Offer	[TEST] Offer forest biomass quality analysis				
Showing 1 to 1 of 1 entries						Previous	1 Next

Figure 24. Example list of the entries in a profile

The buttons that are shown in Figure 24 are the following:

- Orange icon: View the list of conversations for this entry.
- Yellow icon: Pause or re-activate the entry (it will stop being shown, but the entry will not be deleted)
- Blue icon: edit data for the selected entry
- Red icon: delete entry

5. Expected outcomes

Regarding the expected outcomes and the future objectives of the e-market environment, it has been decided that it should include not just the pilot initiatives involved and developed within the scope of the project, but also serve as a strong tool that engages all the European stakeholders involved in the bioenergy, biomass supply chain and energy communities. This way, it will support them during and after the end of the project (as stated in D6.7 – BECoop exploitation and sustainability plan). Thus, the tool will not only serve as a contact point for the pilot communities by helping them find the stakeholders that can be potential partners in their projects or potential beneficiaries of their activities, but also all the participants of these biomass supply chains or biomass-based heating systems. These outcomes are enlisted in the following paragraphs:

- The first and more obvious outcome expected from the environment is to give support to the pilot energy communities that have been created or supported by the BECoop project. It will help find those stakeholders that can complement their activities or provide solutions in the aspects that the pilot cases should need extra assistance, establishing new contacts and cooperation activities and this way achieving, on the one hand, a wider diffusion and deployment of the projects among related stakeholders, and on the other hand, providing of a contact network that can be capable of providing technical, financial, business or community management solutions to the extent necessary.
- The environment should serve as a contact platform among the stakeholders taking part in the biomass supply chain. Also, with those involved in already existing or new energy communities or renewable energy cooperatives, so that it can fulfil the mission of establishing new contacts and collaborations, to continue with existing projects or start developing new ones. In this sense, the environment should help to find those stakeholders that can help develop a project, providing technical, business, financial, community management solutions or even helping to find new final users or consumers of bioenergy or biomass.
- The e-market environment will provide conclusions for T2.4 on the use of e-market-like tools as support services for biomass based cooperative initiatives and consumption
- At a general and sectorial level, the environment should serve as a reference contacting point for all the European actors that are involved in the bioenergy and energy community sector and the biomass supply chain.
- The last part of the task will include an educational vector that will be able to explain, schematically and visually the interactions needed by the participants of the bioenergy sector to implement in an effective way a new biomass supply chain, always related to bioenergy or renewable energy communities. This part of the task is still under development and will be deployed during the next year of the project and will be explained more thoroughly in the next sections (and reported in D2.6).

For fulfilling these objectives, all of the interested actors can get to register freely in the environment and start uploading their entries (whether they are needs or offers for services/products). Having achieved this step, the system will suggest existing entries that best fit them (by establishing relationships among the categories of entries). Users will then be able to choose the ones that suit them best and start conversations with participants so that they can come up with a potential solution for the posted topic.

It is necessary for reaching these objectives to create a populated, and thus a useful environment; this way, more entries will be available inside the environment, and this will create a wide offer of opportunities and solutions that will help to find the most suitable solution for a varied range of offers or necessities. So, it is necessary a strategy for deployment and diffusion, that will include the activities such as workshops performed by the members of the BECoop projects, or the diffusion among their contact networks, to get as many people as possible to register and post their needs offers in the environment, this way creating a rich platform full of solutions.

6. Next steps

During the following stages of the task, a series of actions should take place, mainly with two main objectives:

Firstly, to achieve an effective, wide deployment of the environment. This way, it will fulfil the objective of reaching as many actors involved in the energy communities and bioenergy sectors as possible, thus being a useful tool for these actors and getting to provide solutions to all the problems the sector is facing. To achieve this objective, it will be necessary for all project partners to make an effort to disseminate the tool, through their network of contacts, as well as through the social networks in which they are involved at an organizational level, such as LinkedIn, or through its publicity in events (related or not to the BECoop project) in which they participate. It will also be necessary to publish posts on the project's social networks to remind people of the existence of the platform, to maintain a constant interest.

Related to this first objective, the necessary modifications and improvements of the platform will be made, thanks to the feedback of the partners, BECoop cases and other external users, so that it can be perfectly adapted to the environment and actors that get to register in it. This feedback will be gathered from the BECoop cases, by direct contact and survey, and from the surveys that will be performed throughout the tool curation.

Secondly, and related to the “educational vector” section of the task, an informational vector is currently being developed. This section will be able to describe visually and schematically to users and members of the bioenergy and energy community supply chain and to those people that are not involved in them or don't have a deep knowledge of the sector, what type of interactions need to take place and with what type of stakeholders to effectively set up this kind of projects. The main objective of this part of the task, as according to “description of the action, DoA”, is the following: *To demonstrate to potential bioenergy RESCoops the various stakeholders' interactions and activities/services that need to take place for setting up an effective and sustainable local supply chain and a community bioenergy project.*

The information that will include is the following:

- Overview of the supply chain: A description of the members included in the supply chain will be included, categorizing them by the stage in which they take part (resource obtaining and treatment, supply and processing, energy conversion, storage). It will also include a diagram showing the different interactions that can take part among the different actors in each one of the stages of the supply chain.
- Stakeholders involved in the supply chain and interactions among them: based on the stakeholder categorization performed during the development of the e-market environment, their roles in the supply chain will be further explained, alongside the stages in which they can see themselves involved and how. Also, examples of energy communities based on each type of stakeholder will be presented, this way helping to give an overview of the degree of involvement the different actors can achieve and how the different initiatives are developed.
- The last section including links to the different tools developed by the project or relevant for the bioenergy and energy communities supply chain will be presented, to complement all the information gathered in this educational vector.

7. Conclusions

This task focuses on developing an e-market environment that can be used to connect supply chain stakeholders as a virtual platform that offers stakeholders the opportunity to learn about a community bioenergy project. Furthermore, it serves as a point of contact for all stakeholders involved in the bioenergy and energy communities supply chain, thereby facilitating interaction between these stakeholders throughout Europe. It will act as a strong educational and informational vector, for demonstrating to potential bioenergy RESCoops and non-experienced users the various stakeholder interactions and activities/services that must take place for setting up an effective and sustainable local supply chain and a community bioenergy project.

The BECoop e-market environment has been developed as an easy access interface (web portal) and allows users to enter and register their different necessities or offers. A method for user testing and interaction has also been provided to the partners, to obtain their feedback and solve any potential issues that can be identified.

The e-market environment can also be used by other tasks of the project for the support of BECoop RESCoops, by providing methods for contacting the needed stakeholders in each case. The developed environment, along with the activities and results of the project, will support these communities during and after the end of the project (as stated in D6.7 – BECoop exploitation and sustainability plan), for the definitive deployment and uptake of this new form of organizations.

By the time this deliverable is written, a beta version is online while a stable platform version expected to be fully operational by end of February 2022.

The e-market platform and the task will continue being developed and improved during the next months and will be continuously updated in line with the project's progress. A revised deliverable version, that will include the final educational vector will be delivered in M30 (April 2023) and will be based on the experience gathered by the partners and the users in the first 30 months of the project, considering the opinion of relevant stakeholders and the pilot initiatives supported by BECoop. The information provided by the educational part of the task will be adjusted if needed, thus increasing and improving the project's capability to help the targeted agents and stakeholders and better convey the BECoop vision to the European community.

8. Annex I

Table 1. Number of registrations per stakeholder type

Biomass owners	Biomass management companies	Equipment manufacturers	ESCOs and installers	Research centers/universities	Cooperatives / Energy communities / RESCoops	Investors	Public institutions	End users
6	6	12	13	19	12	3	2	6

Note: The number of registrations per stakeholder type is higher than the total number of registrations because some of them have registered in more than one type (as can be seen in **Error! Reference source not found.).*

9. Annex II

Type of stakeholder *

Please select here the type of stakeholder where you belong from the list below. If you do not see yourself represented in any of the identified stakeholders, please select the one you feel most closely resembles them or reflects your role:

- ☐ Biomass owners
- ☐ Biomass Management companies
- ☐ Equipment manufacturers
- ☐ ESCOs and installers
- ☐ Cooperatives / Energy communities / RESCoops
- ☐ Investors
- ☐ Research Centers / Universities
- ☐ Public institutions
- ☐ End Users (as consumers of bioenergy)

Do you want to post an offer or a need/interest? *

- ☐ I want to offer my services/products
- ☐ I want to post a requirement/need to be fulfilled by other company

Name of the company / Organization / Interested person / Contact person *

Please provide the appropriate information

Tu respuesta _____

Website / social media

Please write here your website or other relevant social media where your company is active (if applicable).

Tu respuesta _____

Contact information *

Please write here your contact details: include, at least, name of the contact person, e-mail, and your position in the company (if applicable).

Figure 25. Information required for pre-registration