



Networking facility

Del 4.1

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Author(s): **Michail Kaminiaris and Zisis Tsiropoulos (AGENSO)**

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Abstract

The current document presents an in-depth description of the networking facility developed in the framework of AgroFossilFree's WP4. The facility that is developed is entitled AgEnergy platform, and its content has been reported in D4.4 "Online content report". In the current deliverable the 3 main functionalities of AgEnergy platform are described in detail, aiming to provide a comprehensive analysis of the procedure for creating new record, search/query for results, and updating existing records. The aforementioned functionalities are considered to be key features of AgEnergy platform for the knowledge diffusion, optimization of knowledge transfer and achievement of engagement with end-users of the platform.

Table of Contents

1. AgEnergy platform.....	5
2. Key features.....	5
2.1. Create new record.....	6
2.2. Search/query for results.....	30
2.3. Update existing records.....	33
3. Conclusions.....	35

List of Figures

Figure 1. AgEnergy platform	5
Figure 2. Profile icon	6
Figure 3. Add new FEFTS form (information tab).....	7
Figure 4. Information for scientific paper	8
Figure 5. Information for research project	9
Figure 6. Information for commercial technology	9
Figure 7. Information for training material.....	10
Figure 8. Information for financial mechanism.....	10
Figure 9. Provider/source tab	11
Figure 10. Agricultural application categories	12
Figure 11. Heating and cooling types.....	13
Figure 12. Process heat/cold types	13
Figure 13. Lighting types	13
Figure 14. Agricultural field practices' types.....	13
Figure 15. Vehicle types	14
Figure 16. Tool types.....	14
Figure 17. Energy provision types	14
Figure 18. Clean energy supply subcategories.....	15
Figure 19. Energy production system dependencies	15
Figure 20. Hydro subcategories	16
Figure 21. Biomass subcategories.....	16
Figure 22. Geothermal subcategories.....	16
Figure 23. Hydrothermal subcategories.....	16
Figure 24. Marine energy subcategories.....	17
Figure 25. Energy produced categories.....	17
Figure 26. Heating purposes	17
Figure 27. Cooling purposes.....	18
Figure 28. Electricity types	18
Figure 29. Mechanical energy applications.....	18
Figure 30. Chemical energy types	19
Figure 31. Photovoltaics categories	19
Figure 32. Solar thermal categories	20
Figure 33. Wind turbines categories	20
Figure 34. Hydropower categories.....	20

Figure 35. Heat pumps categories	21
Figure 36. Geothermal categories.....	21
Figure 37. Solid biomass conversion categories	21
Figure 38. Biogas/ biomethane production categories.....	22
Figure 39. Liquid biofuels production categories.....	22
Figure 40. Translatable Other field example – Photovoltaics	22
Figure 41. Energy storage categories	23
Figure 42. Heat storage types	23
Figure 43. Electricity storage types	24
Figure 44. Cold storage types.....	24
Figure 45. Intermediate bioenergy carrier types	24
Figure 46. Translatable Other field example - Heat storage	25
Figure 47. Soil carbon sequestration categories	25
Figure 48. Organic matter subcategories.....	26
Figure 49. Material tab.....	26
Figure 50. General assessment	27
Figure 51. Environmental assessment	28
Figure 52. Socioeconomic assessment.....	28
Figure 53. Drop-down menu with the possible answers – assessment.....	29
Figure 54. Text input in Other selection in direct and indirect fossil energy reduction (assessment).....	30
Figure 55. Available actions at the end of the registration form	30
Figure 56. FEFTS information types.....	31
Figure 57. FEFTS type selection.....	31
Figure 58. Energy efficiency improvement categories.....	31
Figure 59. Hover feature	32
Figure 60. Search results page	32
Figure 61. Browse FEFTS solutions.....	33
Figure 62. Search bar.....	33
Figure 63. My FEFTS menu - draft edit.....	34
Figure 64. My FEFTS menu - published FEFTS edit.....	34

1. AgEnergy platform

In the context of Task 4.1 and 4.2 of the project, a permanent networking facility has been designed and developed. This tool operates as a web-based platform for enhancing the networking potential of relevant communities and matching of the supply and demand side. The platform (**Figure 1**) is accessible in <https://platform.agrofossilfree.eu/> and is freely available to all interested parties and end-users.

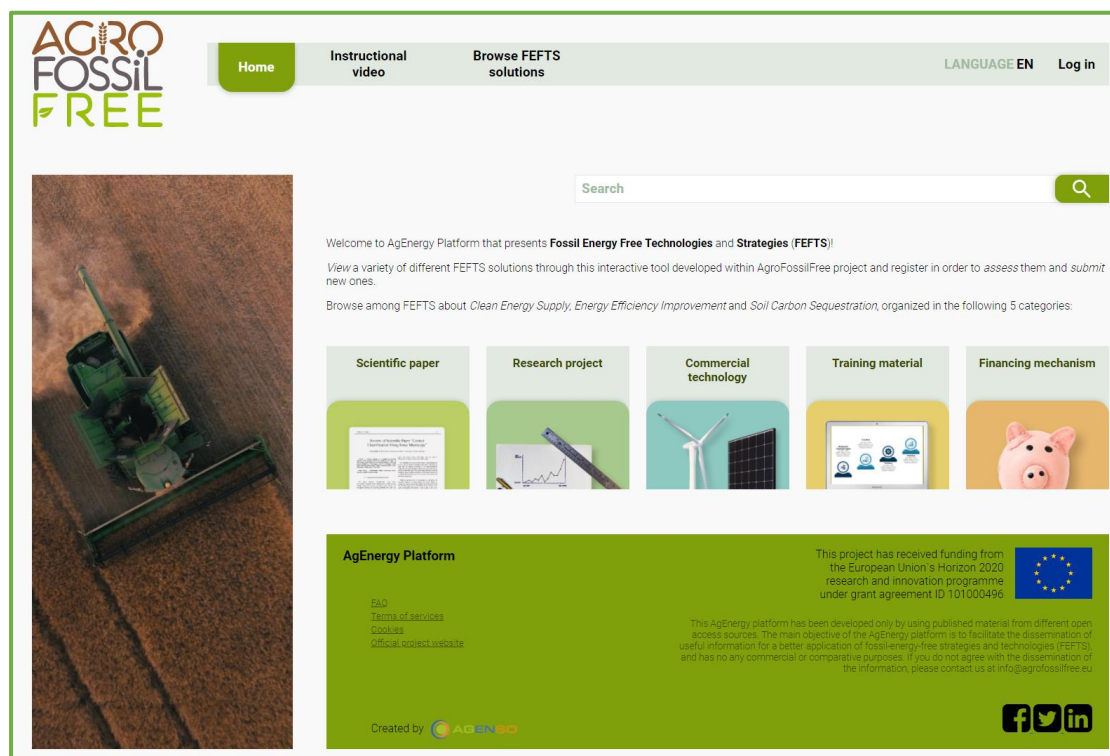


Figure 1. AgEnergy platform

The platform is designed aiming to provide all users with a user-friendly experience in order to achieve the maximum impact and engagement. Knowledge transfer regarding Fossil Free Energy Technologies and Strategies allows users to access innovative high-end valuable information for the defossilization of the agricultural sector and production.

The platform's content has been fed by the results and outcomes of WP1 and WP2 of the project. The key features for the management of this platform are to create new records, search/query for results and update existing records.

2. Key features

All key features are available to authenticated users who have registered themselves by creating a profile into the system. Authentication is possible after providing name, email address and password. Upon registration, a verification email is sent to the user's email, for verification purposes and safety reasons. Afterwards, log in, as well as registration are available through the Log in button on the homepage of the platform, on the top right side area of the webpage (**Figure 1**). Registration and Log in functionalities are also described in D4.4 "Online content report". The aforementioned key features of AgEnergy platform are described in details below in the following paragraphs.

2.1. Create new record

Although initially the permanent networking facility database has been filled with data extracted from the WP1 and WP2, any interested stakeholder is also able to input additional data into the platform. Furthermore, this database is open for public entry, but those entries will be unpublished until they are validated by several strict rules. AgroFossilFree's consortium will act as a reviewer of any new entry, aiming to assure the quality, validity, correctness and completeness of the new entries. These rules exist in order to guarantee the accuracy and reliability of the platform's information in respect to their relevance with the objectives of AgroFossilFree project.

Authenticated users, upon Log in, can access the key feature of creating new records through the profile icon, by selecting "Add new FEFTS" (**Figure 2**).

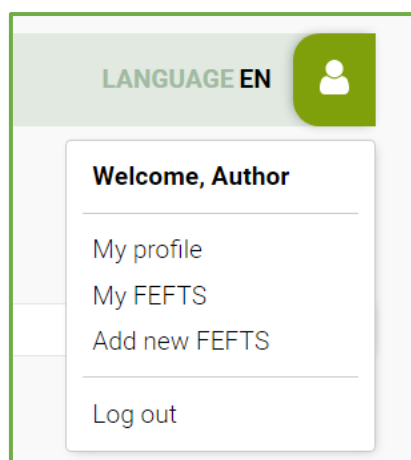


Figure 2. Profile icon

After selecting "Add new FEFTS", users are redirected to the form of registering new FEFTS (**Figure 3**). A total number of 4 distinct tabs require filling, more precisely, regarding the topics of information, provider/source, material and assessment. All fields are either single or multiple selection from a drop-down menu list, or text input in text areas. Some of them are required, while others are optional for the submission of the FEFTS. Additionally, some of the text input areas are featured with the ability to translate the text. The translated text is either provided by the user who registers the FEFTS, or by AgroFossilFree afterwards.

The first tab, namely information, contains general information about the FEFTS, such as:

- **FEFTS information type:** single selection field with possible answers: scientific paper/ research project/ commercial technology/ training material/ financing mechanism (required field).
- **Native language of the FEFTS:** language selection from a drop down menu (required field).
- **Title of FEFTS:** translatable field, where user can provide the text in more than one language among the consortium languages that contain English, Greek, Polish, Spanish, Italian, German, Danish, and Dutch. English version is required.
- **Title in native language:** text area field for FEFTS title in native language of the provider (required field).
- **Description:** translatable field, where user can provide the text in more than one language among the consortium languages that contain English, Greek, Polish, Spanish, Italian, German, Danish, and Dutch (English version is mandatory to be provided).
- **Keywords:** selection of multiple keywords from a list provided in a drop-down menu (optional field).

- **Official website link:** text input area for URL link of the official website (required field).
- **Other websites:** text input area for any further website that is relevant to the entry of the FEFTS (optional field).

The screenshot displays the 'Create a new FEFTS' form within the AgroFossilFree web application. The interface includes a top navigation bar with 'Home', 'Instructional video', and 'Browse FEFTS solutions' buttons, along with a 'LANGUAGE EN' dropdown and a search bar. The form is titled 'Create a new FEFTS' and features four tabs: 'Information' (selected), 'Provider/source', 'Material', and 'Assessment'. The 'Information' tab contains several input fields: 'FEFTS information type' (a dropdown menu), 'Native language' (a dropdown menu), 'Title (en)' (a text input field with a language selector 'en' and a list of other languages: 'el', 'pl', 'es', 'it', 'de', 'da', 'nl'), 'Title in native language' (a text input field), 'Description (in Scientific paper: Abstract) (en)' (a large text area with a rich text editor toolbar), 'Keywords' (a text input field), 'Official website link' (a text input field), and 'Other websites' (a text input field). At the bottom right of the form are 'Save as draft' and 'Submit' buttons. The footer section contains the 'AgEnergy Platform' logo, links to 'FAQ', 'Terms of services', 'Cookies', and 'Official project website', a funding statement from the European Union's Horizon 2020 research and innovation programme (grant agreement ID 101000496), a disclaimer about the platform's development, and social media icons for Facebook, Twitter, and LinkedIn.

Figure 3. Add new FEFTS form (information tab)

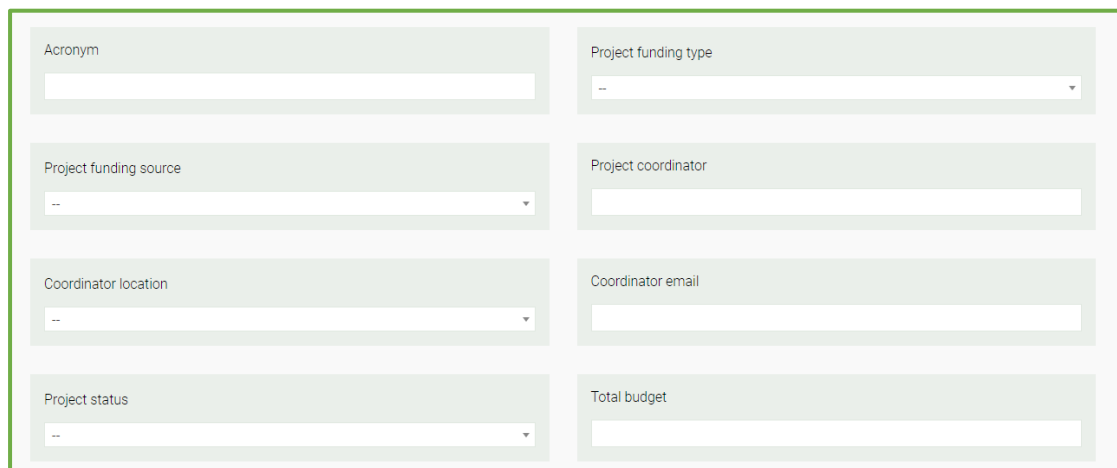
The selection of each one of the 5 FEFTS information type, leads to the opening of further information fields for the specific information type. As a result, when selecting scientific paper, the fields that pop up are the following (**Figure 4**):

- **Authors:** text area for typing multiple authors (required field).
- **Journal:** text area for typing the journal in which the FEFTS is published (optional field).
- **Corresponding author email:** text area for typing the email of the corresponding author (optional field).
- **Journal link:** text area for typing the link of the journal (optional field).

- **Publication date:** selection of year of publication from a drop-down menu (required field).
- **DOI:** text area for typing the DOI of the paper (required field).
- **Article link:** text area for typing the link to the paper (required field).
- **Article funding source:** translatable field for typing the article's funding source, where user can provide the text in more than one language among the consortium languages that contain English, Greek, Polish, Spanish, Italian, German, Danish, and Dutch (English version is mandatory to be provided).
- **Open-access:** selection between yes/no from a drop-down menu. If the paper is freely accessible/open access, the answer should be yes, otherwise no (optional field).
- **Project framework:** text area; in case the paper is conducted within the framework of the research project, users may type the project (optional field).
- **Author location:** country selection from a drop down menu for the country of the main author (optional field).
- **Other locations:** country selection from a drop down menu for the countries of the other authors (optional field).

Figure 4. Information for scientific paper

In the same way, when selecting research project as a FEFTS information type, research projects' information pop up in the information tab (**Figure 5**).



The form for research project information consists of eight fields arranged in a 4x2 grid:

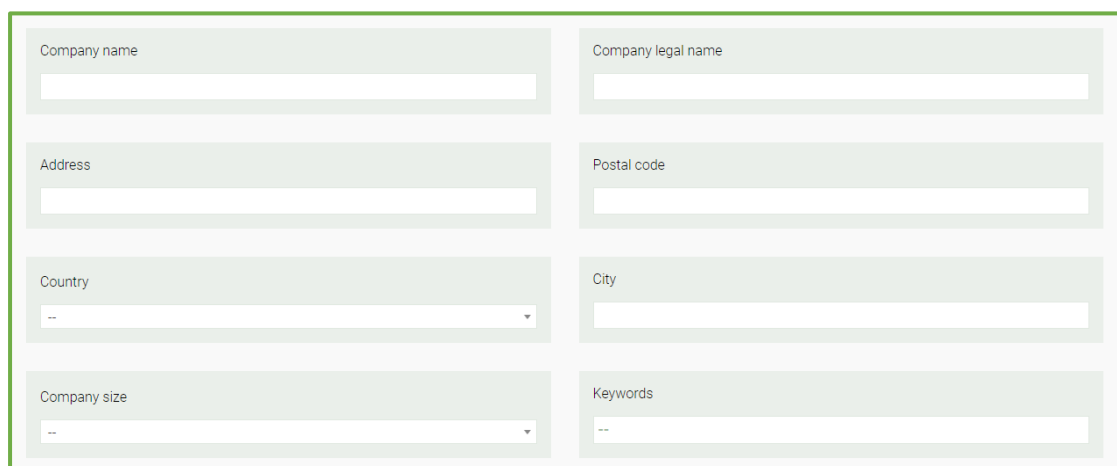
- Acronym:** A text input field.
- Project funding type:** A drop-down menu with a "--" placeholder.
- Project funding source:** A drop-down menu with a "--" placeholder.
- Project coordinator:** A text input field.
- Coordinator location:** A drop-down menu with a "--" placeholder.
- Coordinator email:** A text input field.
- Project status:** A drop-down menu with a "--" placeholder.
- Total budget:** A text input field.

Figure 5. Information for research project

More specifically, information for research projects refers to 8 fields, namely:

- **Acronym:** text area for typing the acronym of the project (required field).
- **Project funding type:** selection from a drop-down menu list with possible choices being EU/ National/ Industry/ Self-funded/ Other (optional field).
- **Project funding source:** selection from a drop-down menu list with possible choices being Horizon Europe (FP9)/ H2020/ LIFE/ FP7/ Interreg/ Other (required field).
- **Project coordinator:** text area for the name of the project coordinator (required field).
- **Coordinator location:** country selection from a drop down menu for the country of the coordinator (required field).
- **Coordinator email:** text area for the email of the project coordinator (required email).
- **Project status:** selection from a drop-down menu list with possible choices being Ongoing/ Finished (optional field).
- **Total budget:** text area for typing the total budget of the project (optional field).

In the same way, when selecting commercial technology as a FEFTS information type, commercial technologies' information pop-up in the information tab (**Figure 6**).



The form for commercial technology information consists of seven fields arranged in a 4x2 grid:

- Company name:** A text input field.
- Company legal name:** A text input field.
- Address:** A text input field.
- Postal code:** A text input field.
- Country:** A drop-down menu with a "--" placeholder.
- City:** A text input field.
- Company size:** A drop-down menu with a "--" placeholder.
- Keywords:** A text input field.

Figure 6. Information for commercial technology

More specifically, information for commercial technologies refers to 7 fields, namely:

- **Company name:** text area for the name of FEFTS provider (required field).
- **Company legal name:** text area for typing the legal name of company (optional field).
- **Address:** text area for typing the address of the company (optional field).

- **Postal code:** text area for typing the postal code of the company (optional field).
- **Country:** country selection from a drop down menu for the country of the company (required field).
- **City:** text area for typing the city of the company (optional field).
- **Company size:** selection from a drop-down menu list with possible choices being 1-10 employees/ 11-50 employees/ 51-250 employees/ 251+employees (optional field).

In the same way, when selecting training material as FEFTS information type, training materials' information pop-up in the information tab (**Figure 7**).

Figure 7. Information for training material

More specifically, information for training material refers to 3 fields, namely:

- **Developing org.:** text area for the developing organization of the FEFTS (optional field).
- **Location:** country selection from a drop down menu for the country of the developing organization (optional field).
- **Material type:** multiple selection from a drop-down menu list with possible choices being Serious game/ E-learning course/ Leaflet or brochure/ Application/ Website/ Video or photograph/ Webinar/ Presentation/ Case study/ Manual/ Drawing or diagram (required field).

In the same way, when selecting financial mechanism as FEFTS information type, financial mechanisms' information pop up in the information tab (**Figure 8**).

Figure 8. Information for financial mechanism

More specifically, information for training material refers to 5 fields, namely:

- **Applicable countries:** single selection from a drop-down menu list with possible choices being Country level/ European level/ Global level/ Other (optional field).
- **Investment type:** multiple selection from a drop-down menu list with choices being National funding/ European funding/ Private funding/ Subsidies/ Other (optional type).
- **Budget:** text area for typing the budget of the financing mechanism (optional type).
- **Subsidy level:** selection from a drop-down menu list with possible choices being Percentage of funding rate/ Maximum funding (optional field).
- **Offerings:** multiple selection from a drop-down menu list with possible choices being Facilities/ Equipment/ Material/ Employees/ Other (optional field).

The second tab of the solution's registration refers to the provider/source of the FEFTS (Figure 9).

The screenshot shows the 'Create a new FEFTS' form with the 'Provider/source' tab selected. The form is divided into several sections:

- Navigation:** Home, Instructional video, Browse FEFTS solutions, LANGUAGE EN, and a user profile icon.
- Search:** A search bar with a magnifying glass icon.
- Form Tabs:** Information, Provider/source (active), Material, and Assessment.
- FEFTS user:** A drop-down menu with a double arrow icon.
- Solution type:** A drop-down menu with a double arrow icon.
- Use of FEFTS:** A drop-down menu with a double arrow icon.
- Additional info (en):** A rich text editor with a toolbar and a language selector (en, el, pl, es, it, de, da, nl).
- Agricultural application:** A drop-down menu with a double arrow icon.
- FEFTS type:** A drop-down menu with a double arrow icon.
- Buttons:** Save as draft and Submit.
- Footer:** AgEnergy Platform, links to FAQ, Terms of services, Cookies, and Official project website, a disclaimer about funding from the European Union's Horizon 2020 research and innovation programme, and social media icons (Facebook, Twitter, LinkedIn).

Figure 9. Provider/source tab

In the current tab, specifications about the use of the FEFTS are included. More specifically:

- **FEFTS user:** multiple selection from a drop-down menu list with choices being Farmer/ Producers association/ Energy generator/ contractor/ Advisory services/ Policy makers/ Companies/ Industry/ Other (required field).
- **Solution type:** multiple selection from a drop-down menu list with choices being Software/ Hardware/ Methodology/ Procedure/ Complete solution/ Other (optional field).
- **Use of FEFTS:** multiple selection from a drop-down menu list with choices being Open-field agriculture/ Livestock/ Greenhouses (required field).

- **Additional info:** translatable field for adding any additional information for the FEFTS, where user can provide the text in all the consortium languages, including English, Greek, Polish, Spanish, Italian, German, Danish, and Dutch (optional field).
- **Agricultural application:** multiple selection (with further corresponding dependencies) from a drop-down menu list with possible choices being Heating and cooling of agricultural constructions/ Process heat or cold/ Lighting/ Agricultural field practices/ Vehicles/ Tools/ Energy provision/ Heat sales to district heating/ Other (required field).
- **FEFTS type:** single selection (with further corresponding dependencies) from a drop-down menu list with possible choices being Clean energy supply/ Energy efficiency improvement/ Soil carbon sequestration (required field).

Depending on the selection made regarding the agricultural application field, dependencies pop-up, corresponding to the selection made (**Figure 10**).

Agricultural application

☐ Heating and cooling of agricultural constructions
 ☐ Process heat/cold
 ☐ Lighting
 ☐ Agricultural field practices
 ☐ Vehicles
 ☐ Tools
 ☐ Energy provision
 ☐ Heat sales to district heating

Heating/cooling type

Process heat/cold

Lighting

Agricultural field practices

Vehicles

Tools

Energy provision

Figure 10. Agricultural application categories

Each of the possible choices in agricultural application provides users with possible choices for selection. More precisely, for heating and cooling of agricultural constructions the choices are presented in **Figure 11**, for processing heat/cold in **Figure 12**, for lighting in **Figure 13**, for agricultural field applications in **Figure 14**, for vehicles in **Figure 15**, for tools in **Figure 16**, and for energy provision in **Figure 17**. Heat sales to district heating and Other selections have no further dependencies.

Heating/cooling type

--
Stables
Greenhouses
Farme's buildings
Cultivation (small scale construction)

Figure 11. Heating and cooling types

Process heat/cold

--
--
Drying commodities
Pre-processing of agricultural goods
Hygenisation
Cold storages

Figure 12. Process heat/cold types

Lighting

--
--
Architecture using daylight
Energy efficient bulbs

Figure 13. Lighting types

Agricultural field practices

--
Tilling/ploughing
Planting/seeding
Fertilizing
Pest control (crop protection)
Irrigation
Harvesting

Figure 14. Agricultural field practices' types

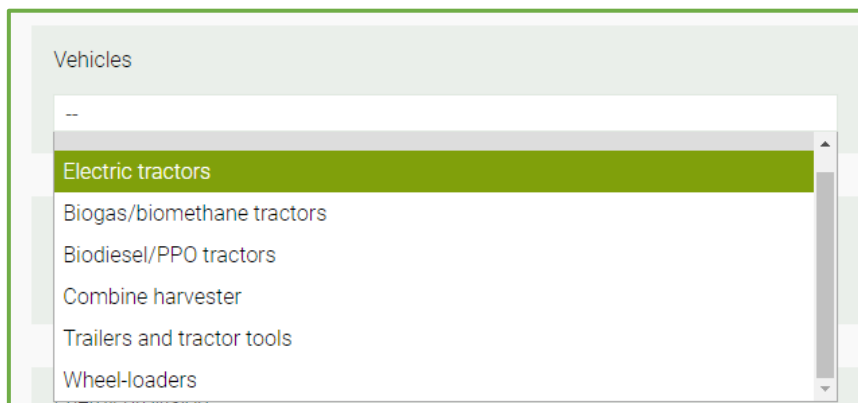


Figure 15. Vehicle types

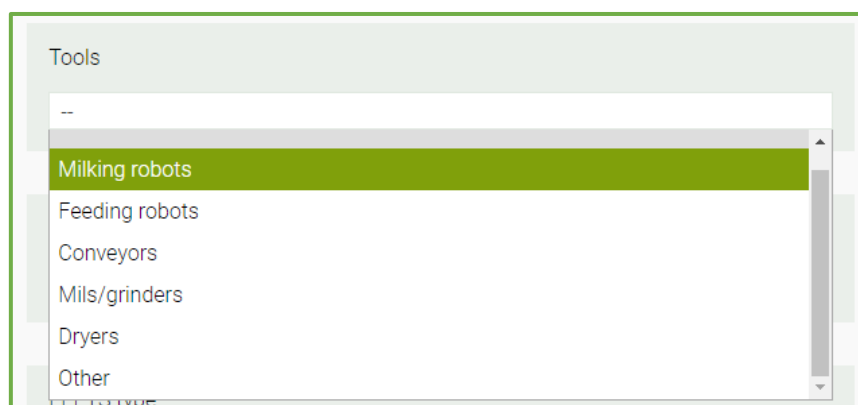


Figure 16. Tool types

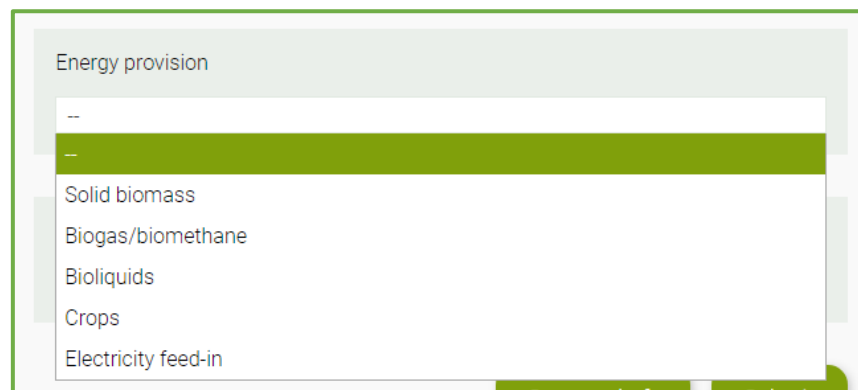
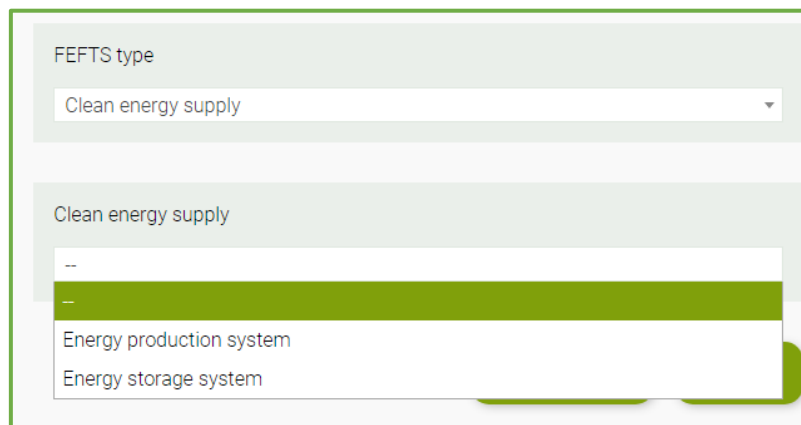


Figure 17. Energy provision types

Regarding the FEFTS type field, the Clean energy supply type has 2 subcategories, i.e., Energy production system and Energy storage system (**Figure 18**).



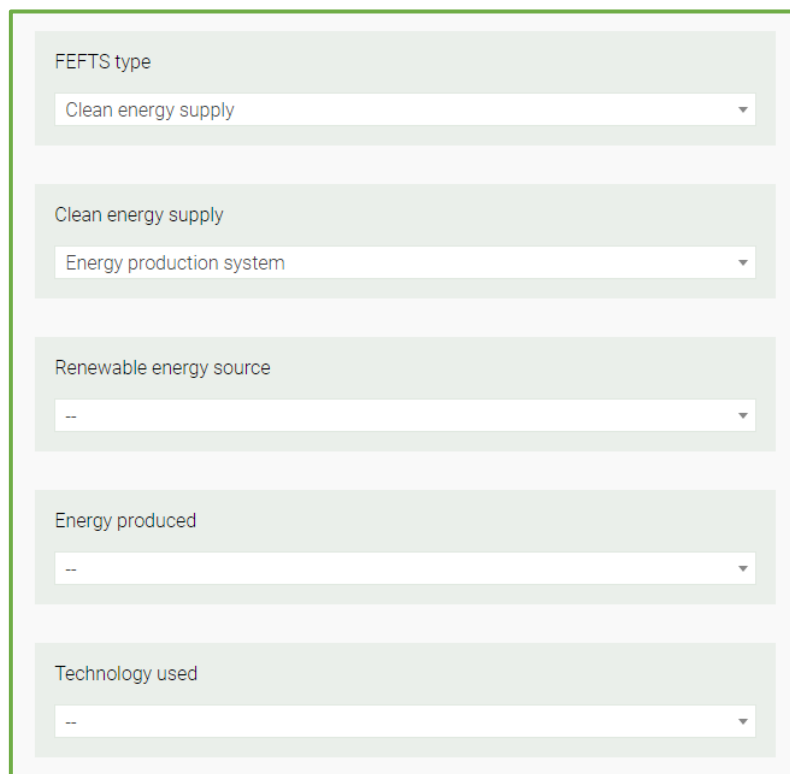
The screenshot shows a web form with a dropdown menu labeled 'FEFTS type' set to 'Clean energy supply'. Below it, a section titled 'Clean energy supply' contains a list of subcategories. The 'Energy production system' option is highlighted in green, while 'Energy storage system' is visible below it.

Figure 18. Clean energy supply subcategories

Energy production systems selection leads to the opening of 3 three fields, namely, Renewable energy sources, Energy produced and Technology used (**Figure 19**).

Renewable energy sources' field requires a single selection amongst the below mention list:

- Solar
- Wind
- Hydro
- Biomass
- Landfill gas
- Sewage treatment plant gas and biogases
- Geothermal
- Aerothermal (ambient air)
- Hydrothermal
- Marine energy



The screenshot shows a web form with five dropdown menus. The first menu, 'FEFTS type', is set to 'Clean energy supply'. The second menu, 'Clean energy supply', is set to 'Energy production system'. The third menu, 'Renewable energy source', is set to '--'. The fourth menu, 'Energy produced', is set to '--'. The fifth menu, 'Technology used', is set to '--'.

Figure 19. Energy production system dependencies

Some of the renewable energies have subcategories that pop up upon selection of the corresponding renewable energy. However, not all Renewable energy sources have subcategories. More specifically, Solar, Wind, Landfill gas, Sewage treatment plant gas and biogases, as well as Aerothermal have no further subcategories.

The subcategories that can be selected for Hydro are presented in **Figure 20**, for Biomass in **Figure 21**, for Geothermal in **Figure 22**, for Hydrothermal in **Figure 23**, and for Marine energy in **Figure 24**.

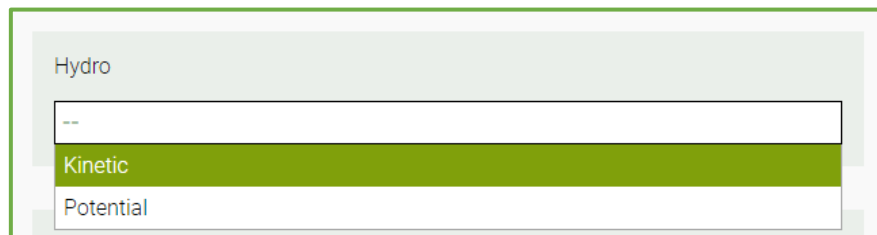


Figure 20. Hydro subcategories

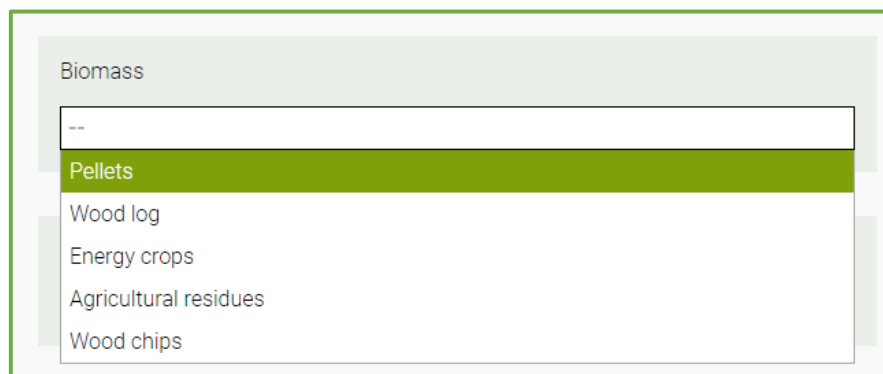


Figure 21. Biomass subcategories

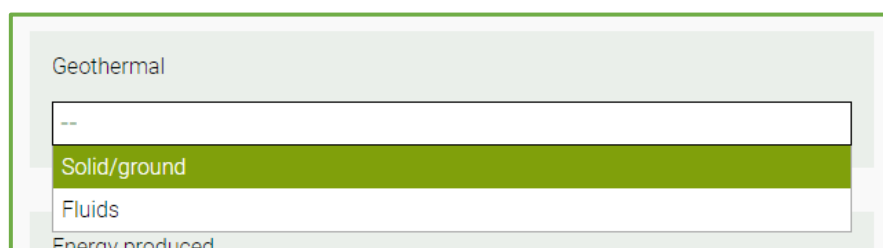


Figure 22. Geothermal subcategories

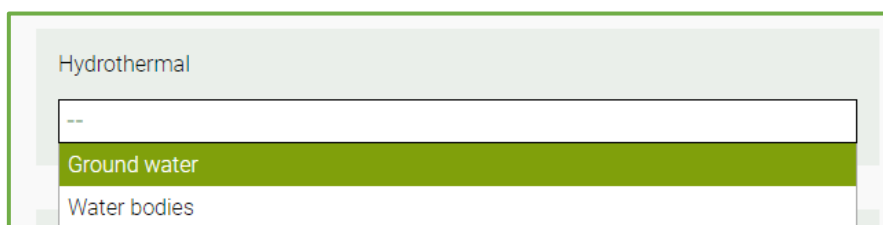
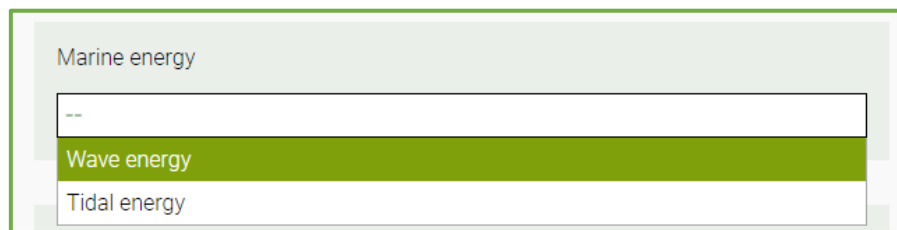


Figure 23. Hydrothermal subcategories



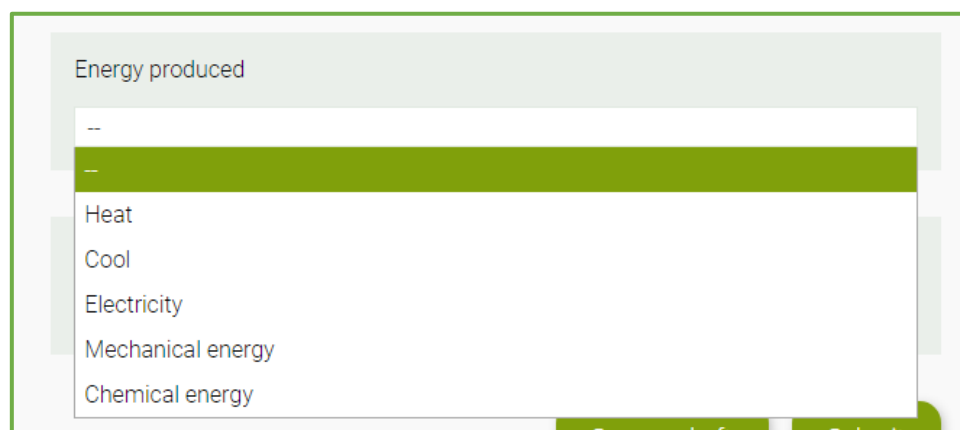
Marine energy

-
- Wave energy
- Tidal energy

Figure 24. Marine energy subcategories

All the aforementioned subcategories of Renewable energies are available for multiple selection, in order to achieve a better characterization of the FEFTS uploaded, attempting to obtain the optimum description of the FEFTS's specifications.

On the other hand, Energy produced field has 5 categories that are presented in **Figure 25**.

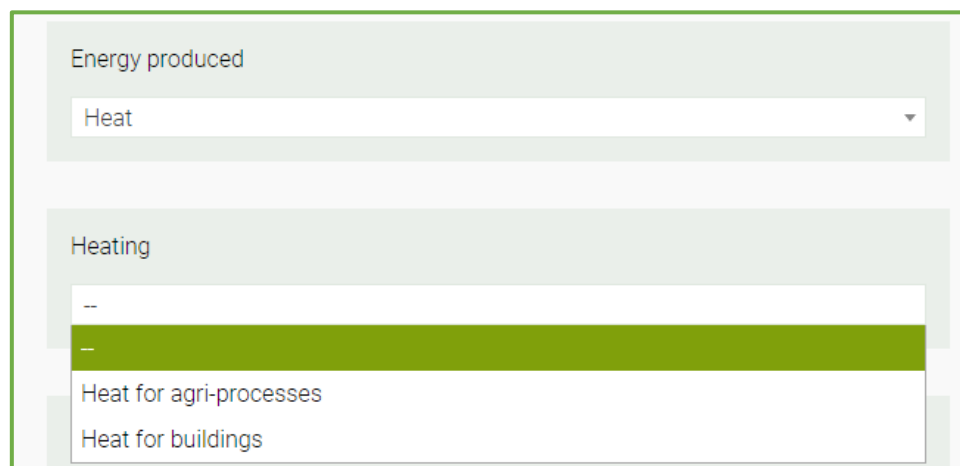


Energy produced

-
-
- Heat
- Cool
- Electricity
- Mechanical energy
- Chemical energy

Figure 25. Energy produced categories

However, each one of them has dependencies. More specifically, the dependencies of Heat are presented in **Figure 26**, of Cool in **Figure 27**, of Electricity in **Figure 28**, of Mechanical energy in **Figure 29**, and of Chemical energy in **Figure 30**.



Energy produced

Heat

Heating

-
-
- Heat for agri-processes
- Heat for buildings

Figure 26. Heating purposes

Energy produced

Cool

Cooling

--

--

Cool for agri-processes

Cooling for buildings

Figure 27. Cooling purposes

Energy produced

Electricity

Electricity

--

--

AC

DC

Figure 28. Electricity types

Energy produced

Mechanical energy

Mechanical energy

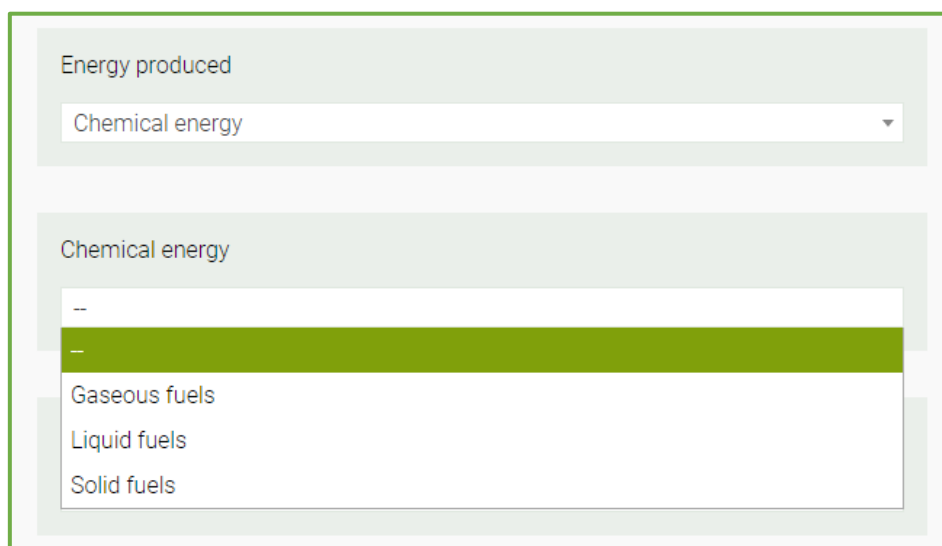
--

--

Stationary applications

Mobile applications

Figure 29. Mechanical energy applications



Energy produced

Chemical energy

Chemical energy

--

--

Gaseous fuels

Liquid fuels

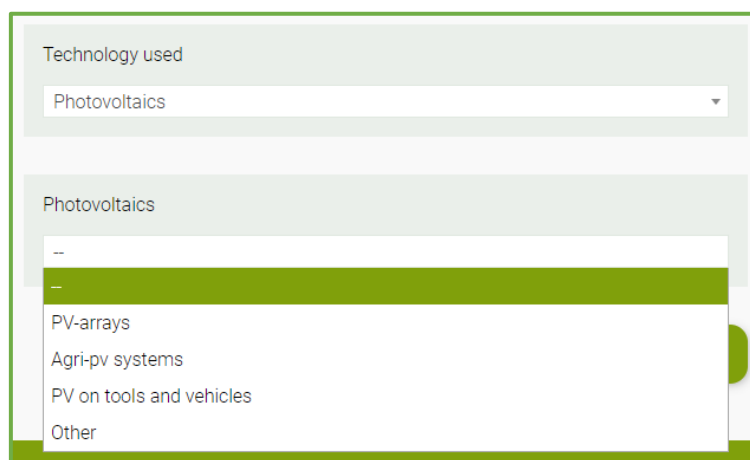
Solid fuels

Figure 30. Chemical energy types

Finally, for the Energy production systems, the last field is the Technology used, with possible choices being:

- Photovoltaics
- Solar thermal
- Wind turbines
- Hydropower
- Heat pumps
- Geothermal
- Solid biomass conversion
- Biogas/ biomethane production
- Liquid biofuels production.

All 9 technologies, have dependencies for the proper categorization of the FEFTS. The dependencies of Photovoltaics are presented in **Figure 31**, of Solar thermal in **Figure 32**, of Wind turbines in **Figure 33**, of Hydropower in **Figure 34**, of Heat pumps in **Figure 35**, of Geothermal in **Figure 36**, of Solid biomass conversion in **Figure 37**, of Biogas/ biomethane production in **Figure 38**, and of Liquid biofuels production in **Figure 39**.



Technology used

Photovoltaics

Photovoltaics

--

--

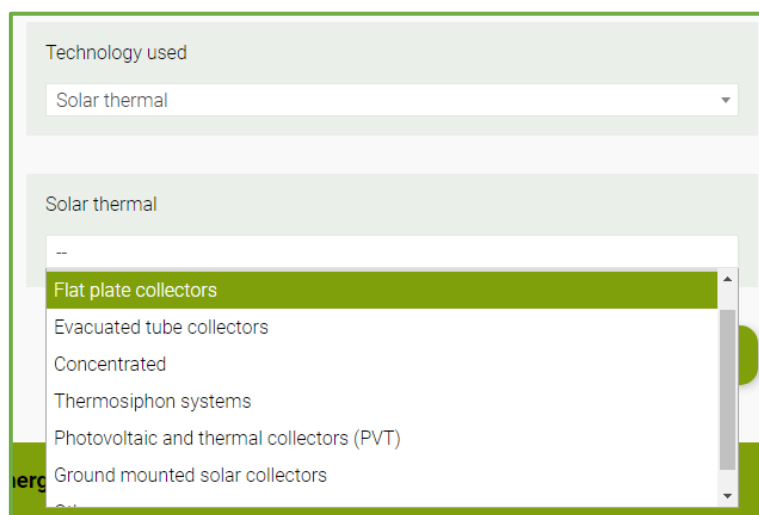
PV-arrays

Agri-pv systems

PV on tools and vehicles

Other

Figure 31. Photovoltaics categories



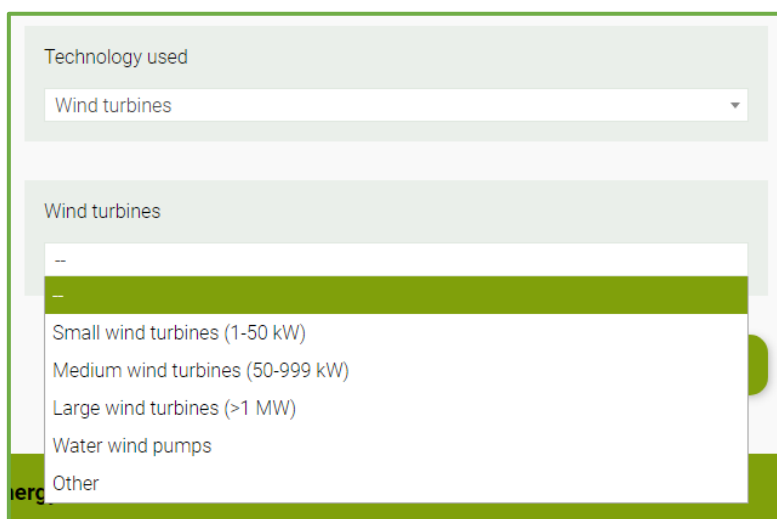
Technology used

Solar thermal

Solar thermal

-
- Flat plate collectors
- Evacuated tube collectors
- Concentrated
- Thermosiphon systems
- Photovoltaic and thermal collectors (PVT)
- Ground mounted solar collectors

Figure 32. Solar thermal categories



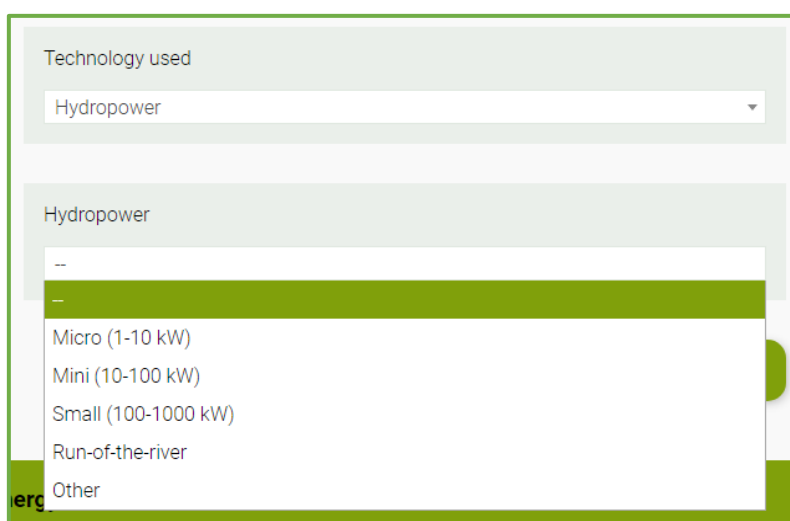
Technology used

Wind turbines

Wind turbines

-
- Small wind turbines (1-50 kW)
- Medium wind turbines (50-999 kW)
- Large wind turbines (>1 MW)
- Water wind pumps
- Other

Figure 33. Wind turbines categories



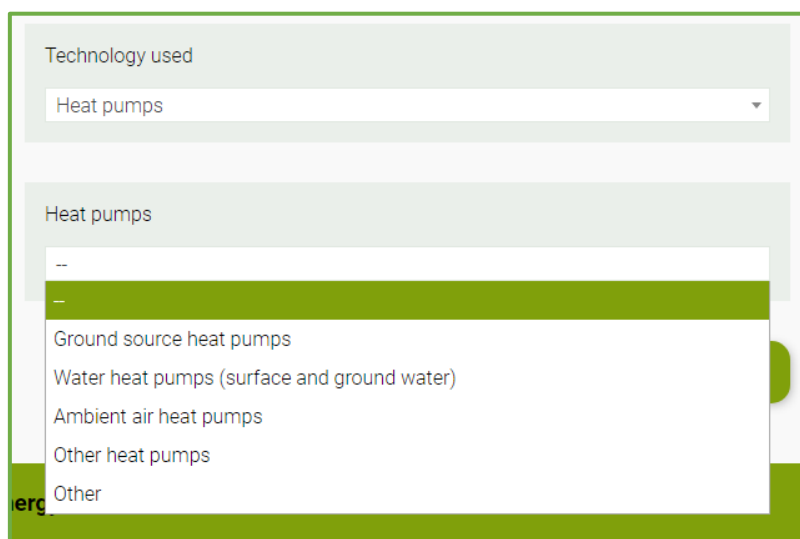
Technology used

Hydropower

Hydropower

-
- Micro (1-10 kW)
- Mini (10-100 kW)
- Small (100-1000 kW)
- Run-of-the-river
- Other

Figure 34. Hydropower categories



Technology used

Heat pumps

Heat pumps

--

--

Ground source heat pumps

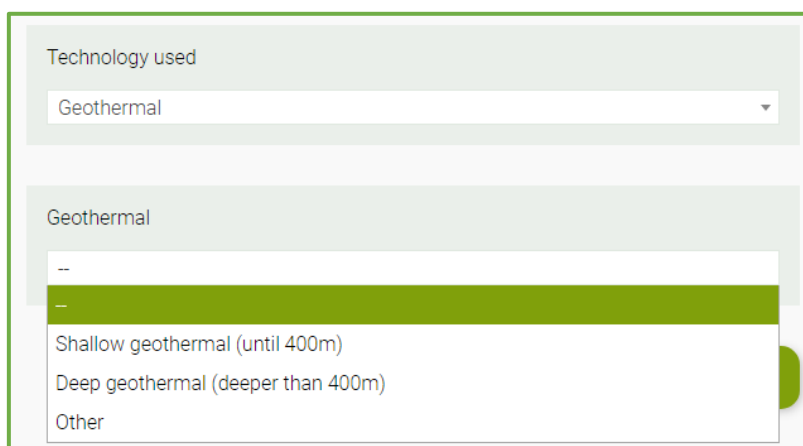
Water heat pumps (surface and ground water)

Ambient air heat pumps

Other heat pumps

Other

Figure 35. Heat pumps categories



Technology used

Geothermal

Geothermal

--

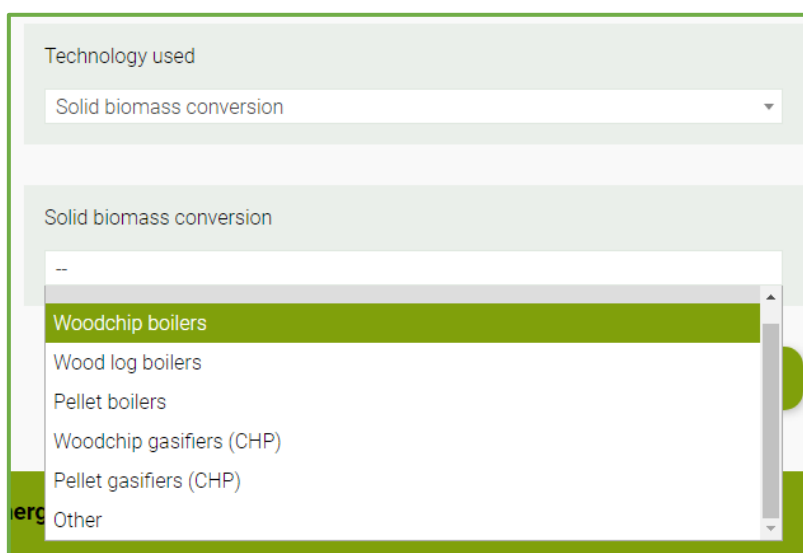
--

Shallow geothermal (until 400m)

Deep geothermal (deeper than 400m)

Other

Figure 36. Geothermal categories



Technology used

Solid biomass conversion

Solid biomass conversion

--

Woodchip boilers

Wood log boilers

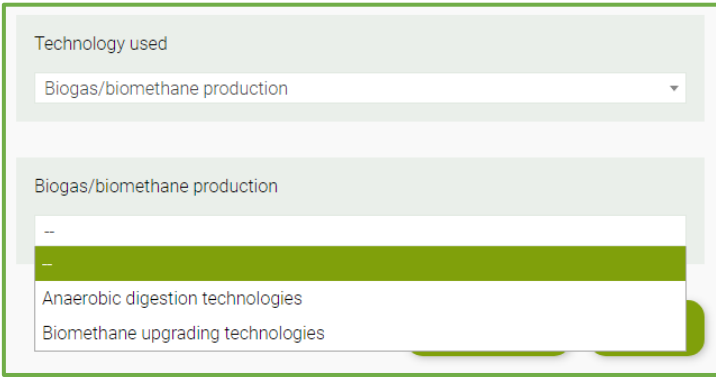
Pellet boilers

Woodchip gasifiers (CHP)

Pellet gasifiers (CHP)

Other

Figure 37. Solid biomass conversion categories



Technology used

Biogas/biomethane production

Biogas/biomethane production


--

...

Anaerobic digestion technologies

Biomethane upgrading technologies

Figure 38. Biogas/ biomethane production categories



Technology used

Liquid biofuels production

Liquid biofuel production

--

...

Oil presses

Biodiesel plants

Distilleries

Other

Figure 39. Liquid biofuels production categories

The remarkable feature, at this latter stage of characterization, is the fact that all the aforementioned categories have an “Other” option at the end of each list that can be selected, and provides an extra ability. This option is empowered by the ability to add a text for the description of the “Other” that has been chosen. Furthermore, this feature comes with an extra characteristic, which is to translate the text provided. In case that the users is not able to provide the text in more languages, AgroFossilFree who acts as a reviewer of the uploaded FEFTS, will provide the translation, upon publication of the FEFTS. An example of this feature is presented in **Figure 40**, for the Photovoltaics’ case.



Technology used

Photovoltaics

Photovoltaics

Other

en el pl es it de da nl

Photovoltaics other (en)

Figure 40. Translatable Other field example – Photovoltaics

This interactive approach, enhances the potential and functionalities of the tool, and complies with the multilingual nature of the tool, aiming to provide all end-users with the optimum experience when searching for FEFTS. The elaborate development of the platform, in terms of software development, that has been applied based on the customized needs of the current project, enables features of high complexity, that allow the tool/platform to function as point of reference in its domain for all interested stakeholders who operate in the agricultural sector.

The second type of Clean Energy supply FEFTS is the Energy storage system. Its subcategories are presented in **Figure 41**.

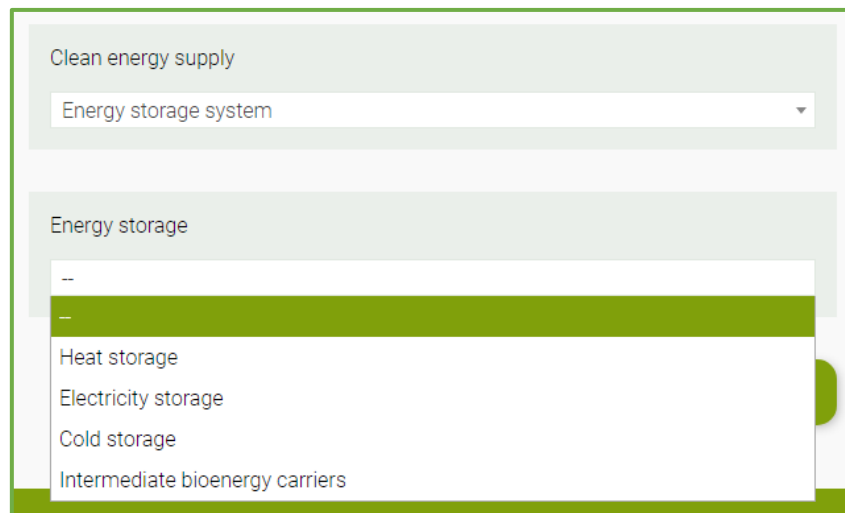


Figure 41. Energy storage categories

In correspondence with Energy production systems, all 4 distinct types of Energy storage systems, have subcategories. The categories of Heat storage are presented in **Figure 42**, of Electricity storage in **Figure 43**, of Cold storage in **Figure 44**, and of Intermediate bioenergy carriers in **Figure 45**.

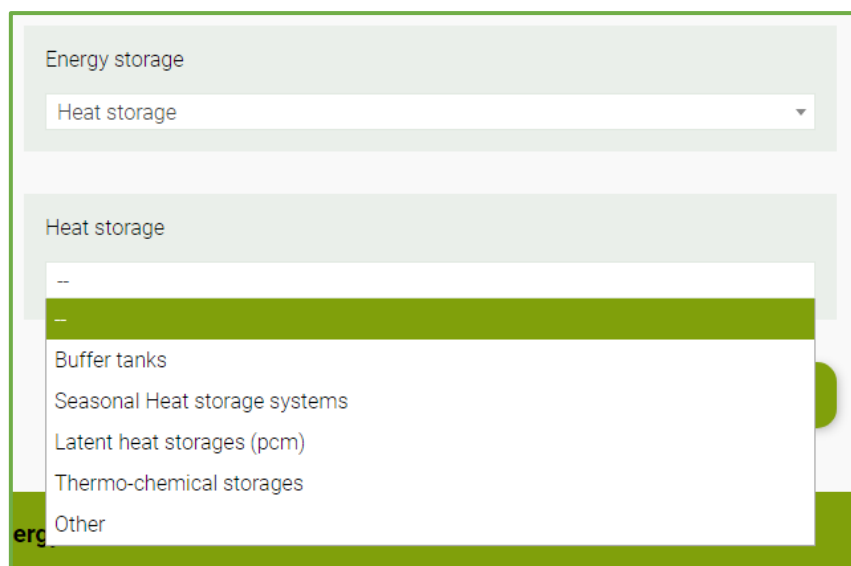


Figure 42. Heat storage types

The screenshot shows a web interface with a green header. Under the 'Energy storage' section, the 'Electricity storage' dropdown is open. The dropdown menu lists the following options: --, Lithium-ion batteries (highlighted in green), Redox flow batteries, Zinc-acid batteries, Lead-acid batteries, Hydrogen (subsystem), and Other.

Figure 43. Electricity storage types

The screenshot shows the 'Cold storage' dropdown menu open. The dropdown menu lists the following options: --, -- (highlighted in green), Ice/slurry storage systems, Other cold storage systems, and Other.

Figure 44. Cold storage types

The screenshot shows the 'Intermediate bioenergy carrier' dropdown menu open. The dropdown menu lists the following options: --, Pellets (highlighted in green), Wood chips, Wood log, Torrefied biomass, Charcoal, Oils, and Other.

Figure 45. Intermediate bioenergy carrier types

Once again, as in the case of Energy production systems, all Energy storage systems are developed and introduced with the feature of “Other” choice, accompanied by translatable text as possible input. Consequently, the ability to provide final categorization that is not included in the list provided, allows covering every possible case that can occur. An example regarding heat storage systems is presented in **Figure 46**.

The screenshot shows a web form for 'Energy storage'. It has a dropdown menu for 'Heat storage' with 'Other' selected. Below this is another dropdown menu for 'Heat storage' with 'Other' selected. A red box highlights a language selection bar with buttons for 'en', 'el', 'pl', 'es', 'it', 'de', 'da', and 'nl'. A red arrow points to this bar. Below the language bar is a text input field labeled 'Heat storage other (en)'.

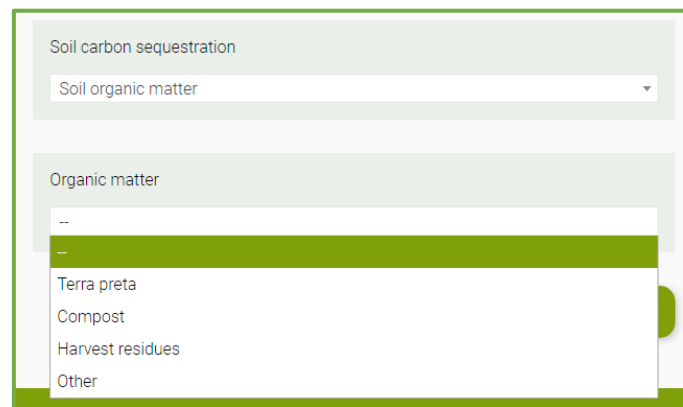
Figure 46. Translatable Other field example - Heat storage

It is apparent that the complexity of the distinct subcategories' deployment is targeting to the best possible characterization of the FEFTS provided. For the users whose field of expertise is related to the scope of the project, the procedure is expected to be relatively simple. AgroFossilFree has put the needed effort in order to provide users with all possible scenarios for the registration of a solution, while at the same time the procedure does not diverge from the structure developed and described in D2.1 “*Report on methodology and standards*”. Thus, due to the high number of fields to be completed, the registration process may initially seem relatively long. However, the deployment of fields -based on dependencies-, in addition with their nature of being organized in drop-down menus that are considered to be user-friendly, allow the procedure of registration to run smoothly. The third type of Clean Energy supply FEFTS is the Soil carbon sequestration. Its categories are presented in **Figure 47**.

The screenshot shows a web form for 'Soil carbon sequestration'. It has a dropdown menu with a list of categories: 'Soil organic matter', 'Tillage (conservation agriculture + CTF)', 'Nutrient management', 'Crop diversification', 'Soil and water conservation techniques', 'Fire management', and 'Grassland management'. The 'Soil organic matter' category is highlighted in green.

Figure 47. Soil carbon sequestration categories

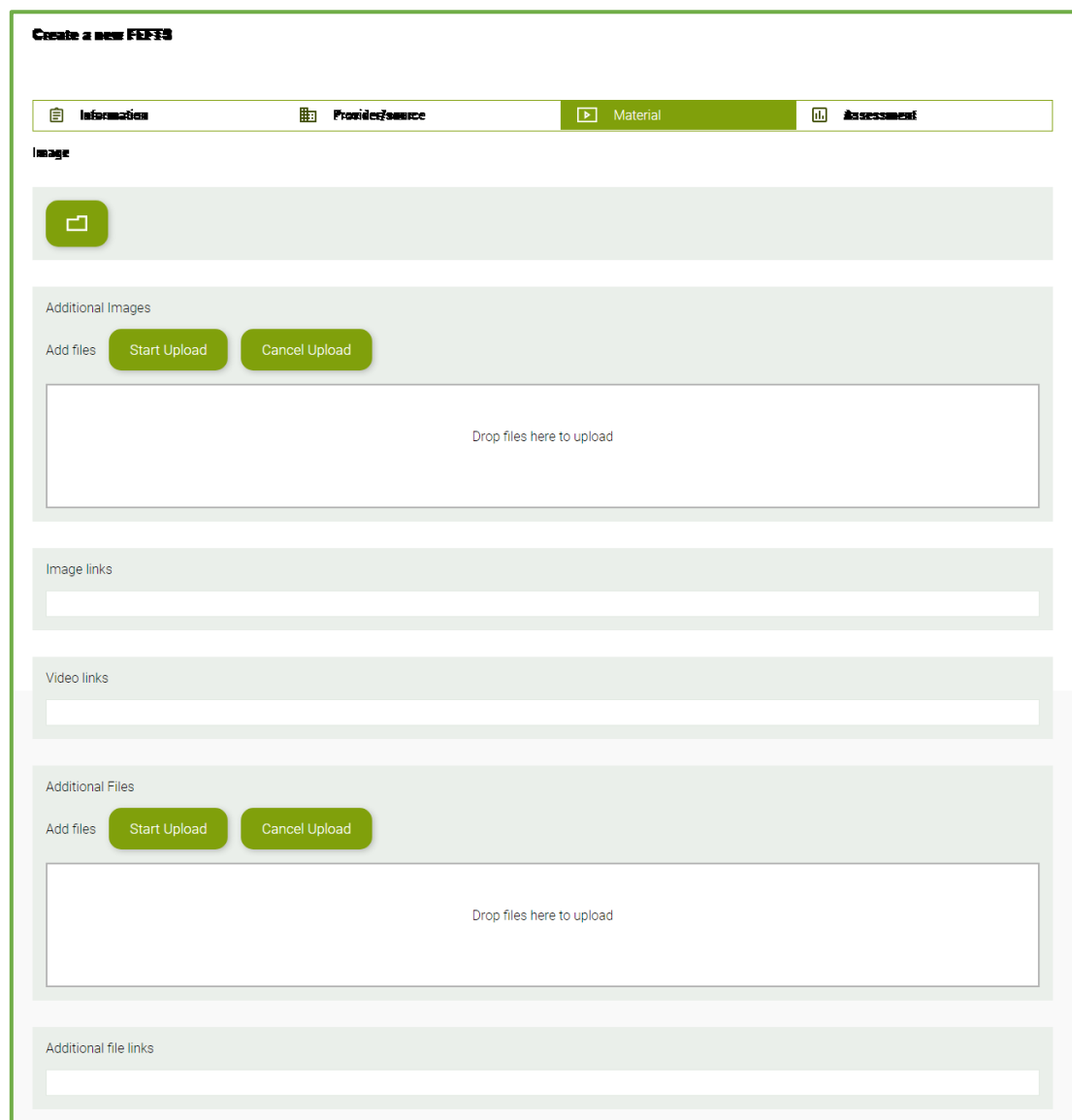
Amongst the 7 categories presented in **Figure 47**, only 1 has further subcategories as extra dependencies. More specifically, Soil organic matter, is this category; and its subcategories are presented in **Figure 48**.



The screenshot shows a web form with two sections. The first section is titled "Soil carbon sequestration" and contains a dropdown menu with "Soil organic matter" selected. The second section is titled "Organic matter" and contains a dropdown menu with a list of subcategories: "--", "--", "Terra preta", "Compost", "Harvest residues", and "Other". The "Terra preta" option is highlighted in green.

Figure 48. Organic matter subcategories

The third tab of FEFTS registration process, is entitled Material, and contains audiovisual material, such as images, additional images and files e.g., presentation or pdf file, image links, video links, and finally additional file links (**Figure 49**).



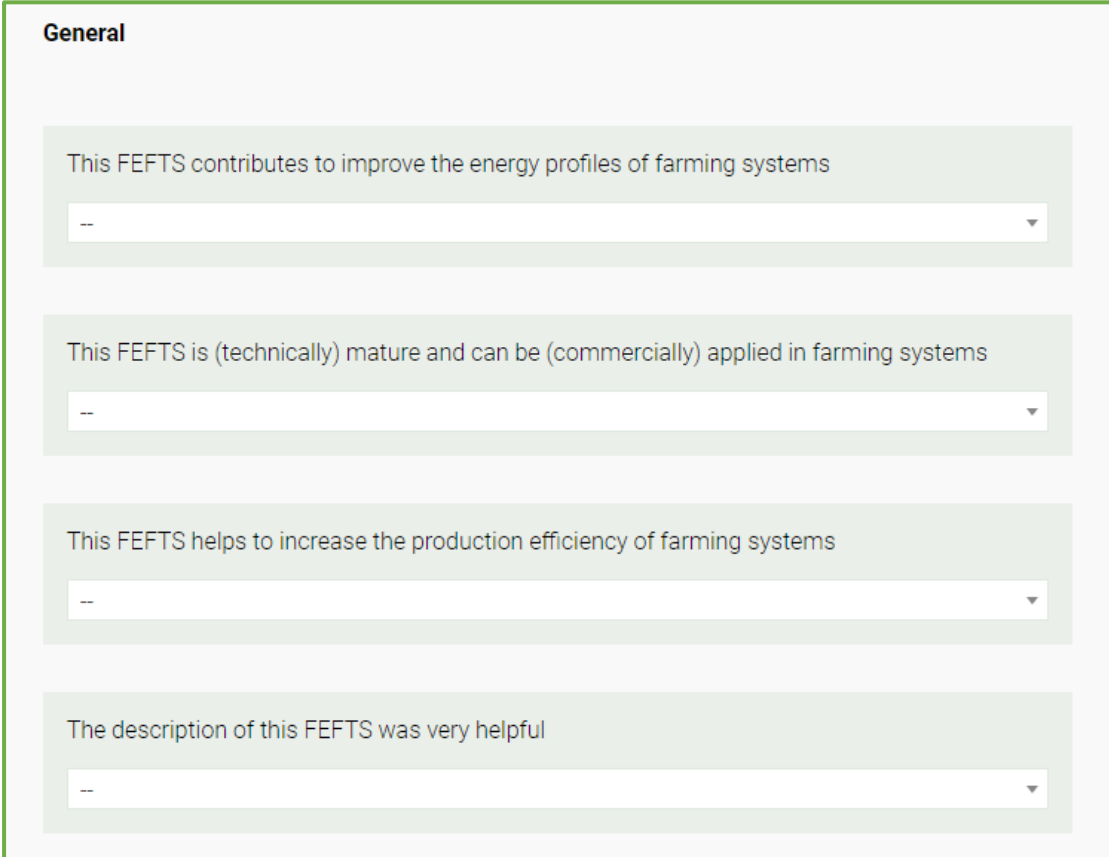
The screenshot shows the "Create a new FEFTS" form with four tabs: "Information", "Provider/source", "Material", and "Assessment". The "Material" tab is active and highlighted in green. The form contains several sections for uploading and linking material:

- Image:** A section with a green button containing a folder icon.
- Additional Images:** A section with "Add files" and "Start Upload" and "Cancel Upload" buttons, followed by a large white box with the text "Drop files here to upload".
- Image links:** A section with a text input field.
- Video links:** A section with a text input field.
- Additional Files:** A section with "Add files" and "Start Upload" and "Cancel Upload" buttons, followed by a large white box with the text "Drop files here to upload".
- Additional file links:** A section with a text input field.

Figure 49. Material tab

Amongst the aforementioned fields, only the primary image is a required field. As a result, a FEFTS can be submitted, without a video or an additional file, but not without an image, in order to provide a representative overview of the solution. Additional images together with additional files to be attached are dragged and dropped in the corresponding box, and then the Start upload button should be used for enabling the upload.

The fourth tab of the registration form, is the assessment tab. In this tab, the user who registers the FEFTS is asked to evaluate the FEFTS regarding 3 different categories of characteristics. More precisely, regarding a general assessment that refers to general questions about the FEFTS, an environmental assessment that is related to its impact in respect to environmental parameters, and finally a socioeconomic assessment that is related to its impact on the society and further aspects of the economic impact that may have. A total of 10 questions are imposed, divided in the 3 subcategories of the assessment procedure, more specifically, 4 in the general (**Figure 50**), 3 in the environmental (**Figure 51**) and 3 in the socioeconomic (**Figure 52**).



General

This FEFTS contributes to improve the energy profiles of farming systems

--

This FEFTS is (technically) mature and can be (commercially) applied in farming systems

--

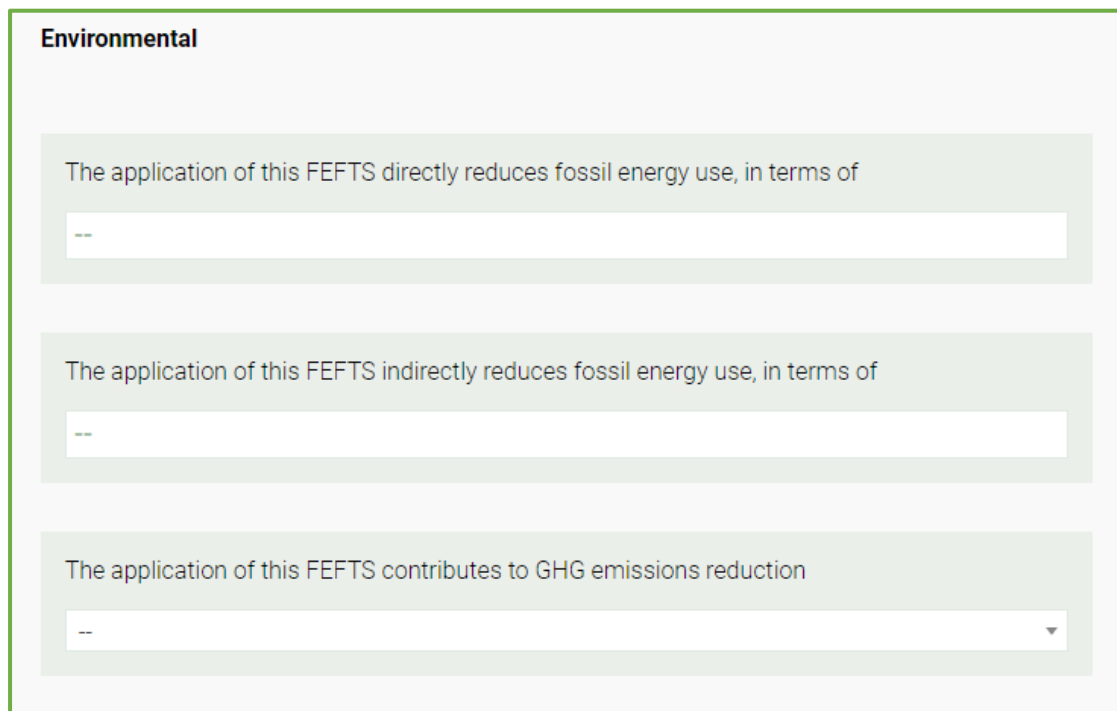
This FEFTS helps to increase the production efficiency of farming systems

--

The description of this FEFTS was very helpful

--

Figure 50. General assessment



Environmental

The application of this FEFTS directly reduces fossil energy use, in terms of

--

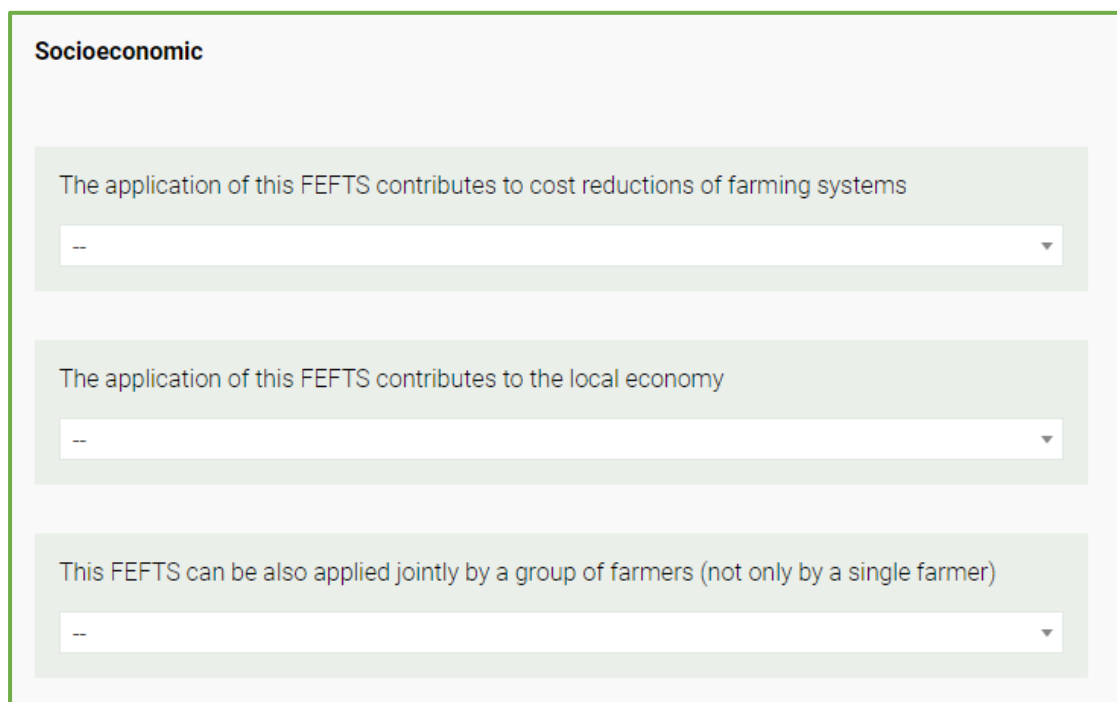
The application of this FEFTS indirectly reduces fossil energy use, in terms of

--

The application of this FEFTS contributes to GHG emissions reduction

--

Figure 51. Environmental assessment



Socioeconomic

The application of this FEFTS contributes to cost reductions of farming systems

--

The application of this FEFTS contributes to the local economy

--

This FEFTS can be also applied jointly by a group of farmers (not only by a single farmer)

--

Figure 52. Socioeconomic assessment

A total of 8 out of the 10 questions of the entire assessment can be answered by selecting a choice from a drop-down list menu with 5 possible choices which are the following:

- Strongly disagree
- Disagree
- Neither agree nor disagree (Neutral)/non applicable
- Agree
- Strongly agree

The options are also presented in **Figure 53**. These fields are required for the submission of the form.

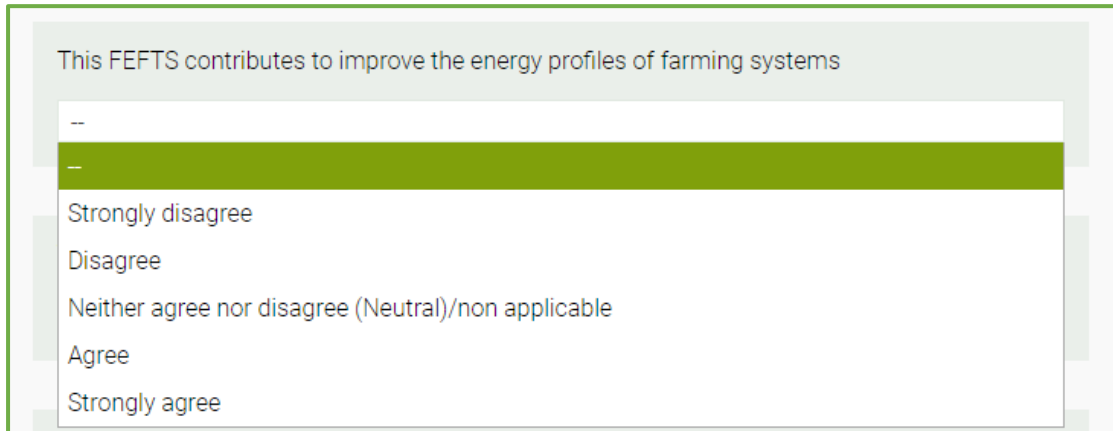


Figure 53. Drop-down menu with the possible answers – assessment

On the contrary, only 2 questions that belong to the environmental assessment, are optional and not required. The 2 aforementioned questions refer to the direct and indirect fossil energy use reduction. These 2 fields' possible answers are presented in a drop-down menu list, as applies to the rest 8 fields, however the possible answers differ.

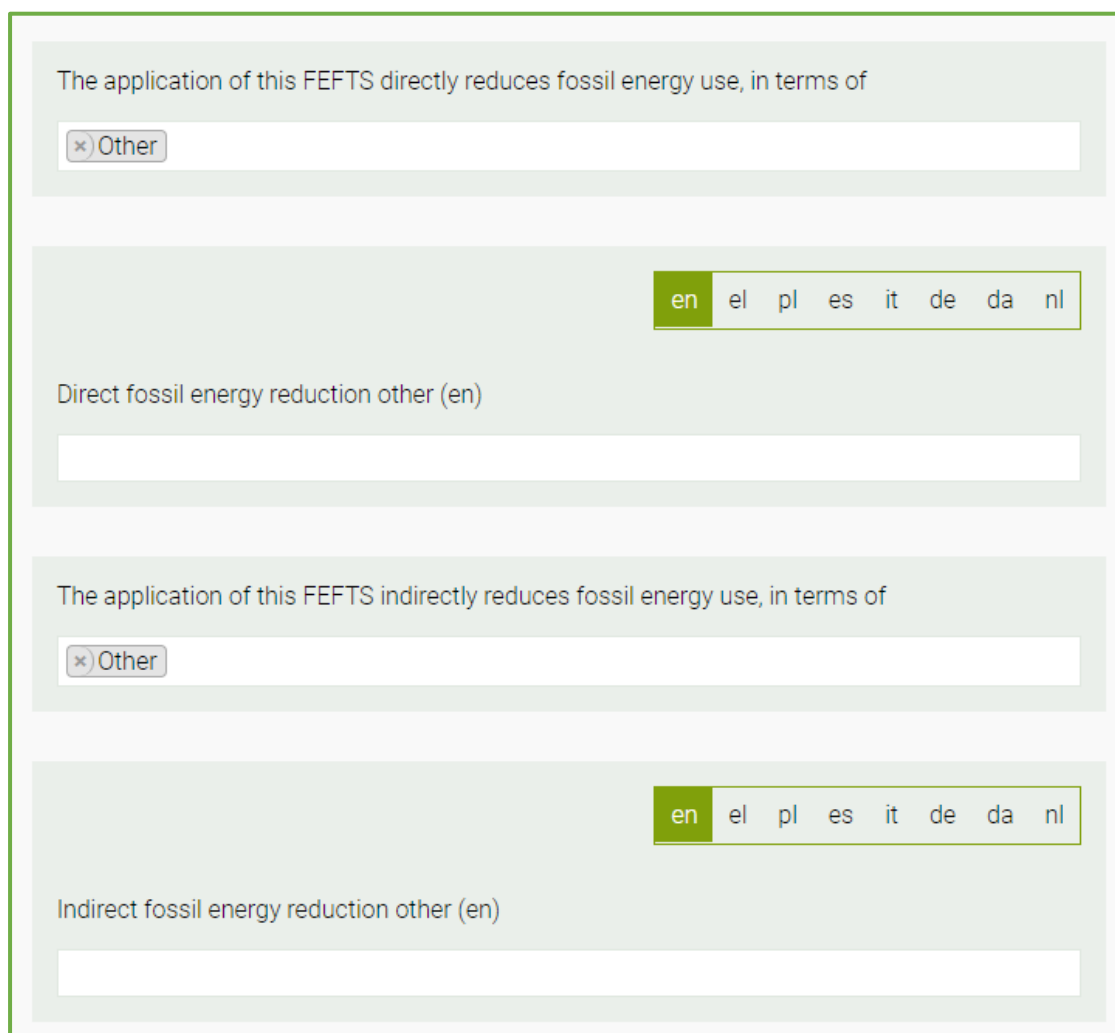
The possible answers to the question addressing the direct fossil energy reduction are the following:

- Buildings electricity consumption
- Buildings heat use
- Buildings cooling needs
- Tractor and vehicles fuel consumption
- Tools and equipment electricity consumption
- Tools and equipment fuel consumption
- Other

The possible answers to the question addressing the indirect fossil energy reduction are the following:

- Tillage reduction
- Seed reduction
- Fertilizer reduction
- Pesticide reduction
- Lime reduction
- Manure reduction
- Feed reduction
- Machine reduction
- Animal healthcare
- Other

For the 2 questions that are optional for the submission of a FEFTS, the “Other” choice is featured with the ability to provide translatable text as answer (**Figure 54**).



The application of this FEFTS directly reduces fossil energy use, in terms of

en el pl es it de da nl

Direct fossil energy reduction other (en)

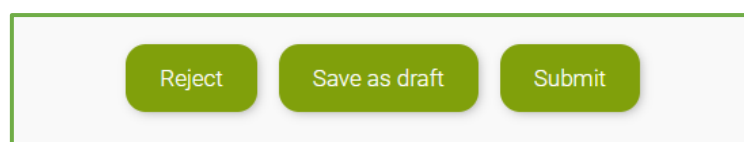
The application of this FEFTS indirectly reduces fossil energy use, in terms of

en el pl es it de da nl

Indirect fossil energy reduction other (en)

Figure 54. Text input in Other selection in direct and indirect fossil energy reduction (assessment)

Finally, at the end of the registration form, user can reject the submission, save it again as draft, or submit it for further evaluation by the AgroFossilFree consortium. The button for the 3 actions are presented in **Figure 55**. After evaluation, the submitted FEFTS may be published on AgEnergy platform.



Reject Save as draft Submit

Figure 55. Available actions at the end of the registration form

2.2. Search/query for results

The second key feature of AgEnergy platform is the search/query for results ability, meaning that users can run a search based on their interests. This is possible in 3 different ways. The first is the use of the platform's pathways. All 5 categories of FEFTS information types (i.e. scientific paper, research project, commercial technology, training material and financing mechanism) that are displayed in the homepage are clickable images (**Figure 56**).

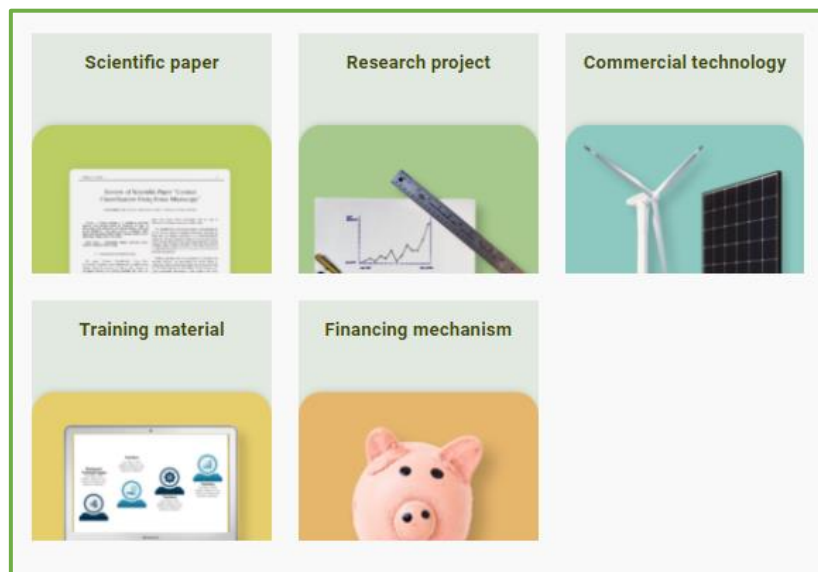


Figure 56. FEFTS information types

This allows users to navigate by selecting the FEFTS type (Figure 57) along with a corresponding categorization for each FEFTS, simply by a click (Figure 58).

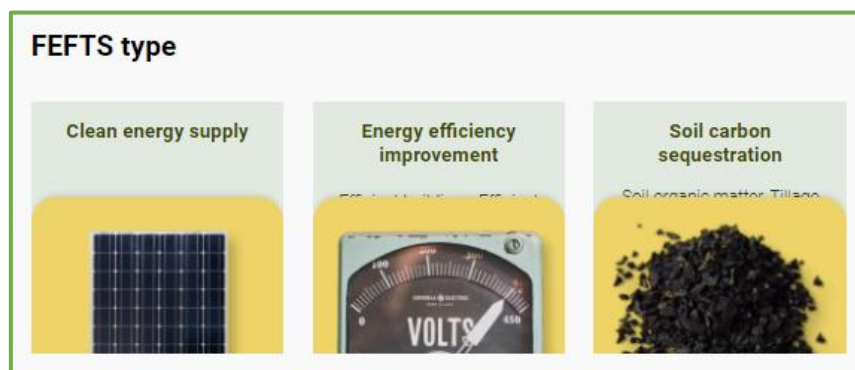


Figure 57. FEFTS type selection



Figure 58. Energy efficiency improvement categories

The same applies to all different possible FEFTS types; where navigation is possible. Additionally, all categories, apart from the final selection, are empowered with a hover feature (**Figure 59**) that allows direct skipping of a classification level, in case the user is aware of the specific category he/she is searching for. Hover feature, moves the image of the category to a lower part of the box, allowing the subcategories of the specific category to reveal and appear. This allows users to click them and proceed. Hover feature makes the navigation a user-friendly experience, and allows moving faster towards the display of the query's result, by passing over one or several layers of characterization.



Figure 59. Hover feature

After making all the appropriate selections -based on query-, results are displayed to the user (**Figure 60**). This new page is the search results page of the platform. On the left side of the screen, all available filters are presented. In the case of the aforementioned navigation, the clicks made by the user, are selected in the corresponding fields in the filters, providing the user with the results of the query that derived from the navigation in the different pages of the platform.

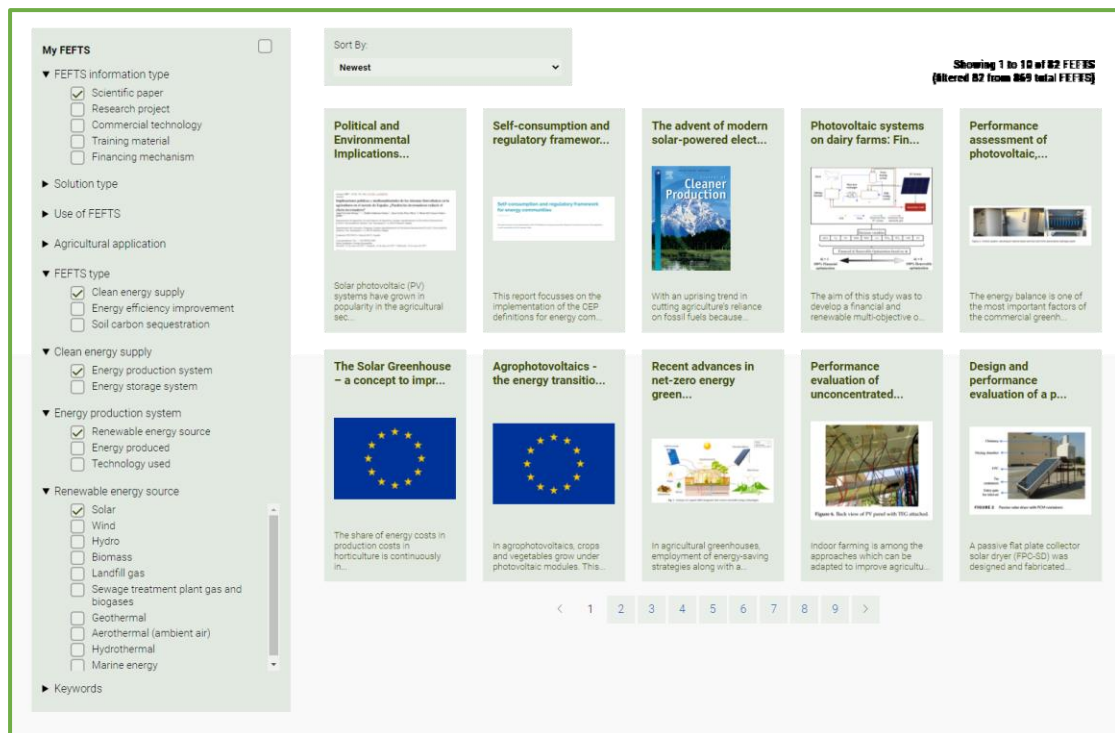


Figure 60. Search results page

However, if the user prefers to skip the navigation, it is possible to get redirected straight to search results page. This is the second way of obtaining results by the platform's content. This can be achieved, by selecting the "Browse FEFTS solutions" in the homepage of the platform (**Figure 61**).

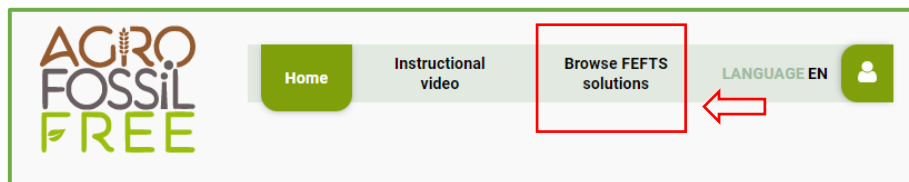


Figure 61. Browse FEFTS solutions

This action leads to the search results page, without any preselected filter. Thus, all platforms content is displayed and users can either go through the entire content, or use the filters on the left side of the screen, according to the search they want to perform. It is worth mentioning that filters are dynamically displayed, meaning that selecting a specific value in a field, leads to the opening of its dependencies, while unclicking of this value leads to hiding of the dependencies. This interactive approach allows the displaying of the filters that have relevance with the query of the user, reducing the possibility to confuse him/her with topics that may be irrelevant to the current query.

Finally, the third possible way to obtain a search result, is by using the search bar on the homepage of the platform. The search bar is placed on an easily accessible section of the homepage, close to the header of the webpage (menu), and allows fast tracking by users (**Figure 62**). In the search bar, users can type a text, i.e. a text/phrase or a word according to their willing. By conducting this query, the platform will redirect them to the search results page, where FEFTS that contain this text in their title, description or any other text area input field, will be displayed.

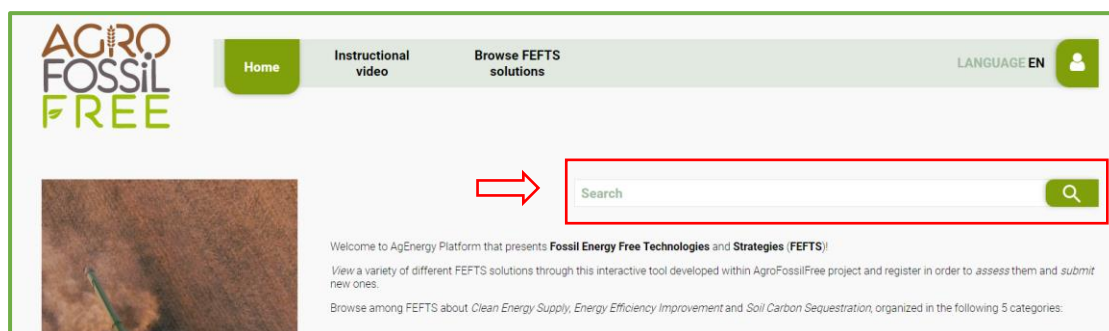


Figure 62. Search bar

All 3 different types of search lead to the same page, the search results page, where users, can optimize their query by selecting and applying further filters in order to specify and refine the result of the query.

2.3. Update existing records

The third key feature of AgEnergy platform is the ability to update existing records. The administrators of the platform along with the owner of each data entry will be able to edit it and update any inaccurate information. When this update is performed by the FEFTS's provider, the information will have to be re-evaluated by the AgroFossilFree consortium before going public.

For FEFTS' owners, after filling at least all the necessary fields, submission is possible and the user can finalize the submission. At any earlier stage, user can save the registration, in order to amend/finalize it afterwards, before submitting. Editing of drafts is possible by selecting My FEFTS in the profile that redirects to My FEFTS list (**Figure 63**).

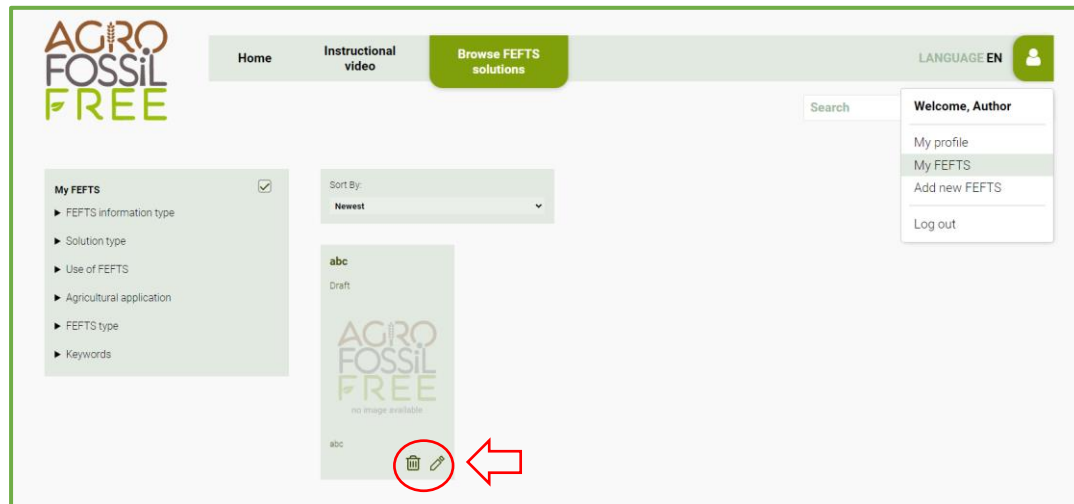


Figure 63. My FEFTS menu - draft edit

On the bottom section of each FEFTS, two icons exist. The first is a trash can, destined for the deletion of the FEFTS, and the second is a pen, destined for editing the draft FEFTS (**Figure 63**, highlighted in red). Pen icon for editing, redirects users to the registration form, where it is possible to add further data/information.

The same procedure can be applied to any already submitted and published FEFTS that is publicly available. The owner can suggest/introduce changes for this entry, which after further evaluation by the project's consortium, may become public again. The only difference in this case, is that the published FEFTS will appear in the My FEFTS list as a published one, and not as draft (**Figure 64**).

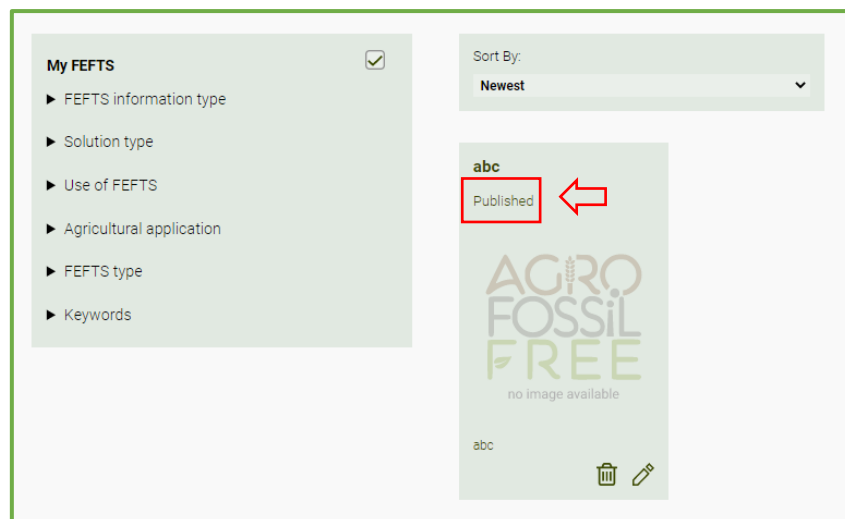


Figure 64. My FEFTS menu - published FEFTS edit

3. Conclusions

In the framework of AgroFossilFree's WP4, an online platform have been developed. In the current deliverable, the link of AgEnergy platform is provided, along with a detailed description of the 3 key features of the tool, that are the ability to create new records, search/query for results and update existing records. The platform itself operates as an interactive tool for searching and registering new FEFTS solutions. As the project flow proceeds, further FEFTS are going to be added to the platform's content, aiming to better knowledge transfer and diffusion. Consequently, AgEnergy platform will undergo constant and continuous amendments for its enrichment, aiming to enable users to access a significant number of available high-end FEFTS.