



Virtual test bed and collaboration tool

Del. 4.2

Type: Report, Title: Virtual test bed and collaboration tool



Document Summary

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Contributor(s): -

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Start date of Project: **1st October 2020**

Duration: **36 months**

Project coordinator: **Thanos Balafoutis - CERTH**

Abstract

AgroFossilFree project's objective is to create a framework under which critical stakeholders will cooperate to evaluate and promote currently available fossil-energy-free strategies and technologies (FEFTS) in EU agriculture to diminish in the short term and eliminate in the long run fossil fuels use in any farming process from cradle to farm gate, while maintaining yield and quality of the end-product. In the framework of WP4 of the project, an online collaboration tool was developed by AGENSO. The aim of the tool was to enable all FEFTS to be presented in a clear and attractive way, using the most relevant information. The aim of the current deliverable is to present the way that FEFTS are displayed in AgEnergy platform, depending on the different FEFTS information types, aiming to simplify knowledge diffusion.

Contents

1. AgEnergy platform.....	4
2. Display of FEFTS.....	4
1.1. Scientific paper	4
1.2. Research project.....	9
1.3. Commercial technology.....	12
1.4. Training material	16
1.5. Financing mechanism	18
2. Conclusions.....	21

List of Figures

Figure 1. Scientific paper - display overview.....	5
Figure 2. Scientific paper - information tab	6
Figure 3. Scientific paper - provider/source tab	7
Figure 4. Scientific paper - material tab	7
Figure 5. Scientific paper - assessment tab	8
Figure 6. Assessment tab in smartphone screen size	9
Figure 7. Research project - display overview.....	10
Figure 8. Research project - information tab	10
Figure 9. Research project - provider/source tab	11
Figure 10. Research project - material tab.....	11
Figure 11. Research project - assessment tab.....	12
Figure 12. Commercial technology - display overview	13
Figure 13. Commercial technology - information tab	14
Figure 14. Commercial technology - provider/source tab	14
Figure 15. Commercial technology - material tab.....	15
Figure 16. Commercial technology - assessment tab	15
Figure 17. Training material - display overview	16
Figure 18. Training material - information tab.....	16
Figure 19. Training material - provider/source tab.....	17
Figure 20. Training material - material tab	17
Figure 21. Training material - assessment tab	18
Figure 22. Financing mechanism - display overview	19
Figure 23. Financing mechanism - information tab	19
Figure 24. Financing mechanism - provider/source tab	20
Figure 25. Financing mechanism - material tab	20
Figure 26. Financing mechanism - assessment tab	21

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/platform operates as a web-based platform for boosting the networking potential of relevant communities. The platform is freely accessible in <https://platform.agrofossilfree.eu/> for all interested stakeholders and end-users.

The platform's functionalities and key features, as well as its content have been described in detail in D4.1 "Networking facility" and D4.4 "Online content report". The platform is developed for the inclusive demonstration and assessment of the identified FEFTS solutions. It operates as a content aggregator and as a single point of entry for end-users. Consequently, demonstration of several data was organized to be projected in an easily understandable and user-friendly image.

As of the end of November 2021, the content of the platform has been fed with the results and outcomes of WP1 and WP2 of AgroFossilFree project, meaning that the content is provided by the project's partners. This is attributed to the fact that the platform has not been yet publicly released, thus is not yet available to third parties outside the consortium.

In the next period, and after the public release and wide share of the platform, an extra feature will be added. More specifically, an evaluation button will be added in the assessment section, in order to provide users with the ability to evaluate existing technologies and rank them according to their needs, opinion and technology's relevance, applicability and feasibility.

As already mentioned in D4.1, the platforms contains FEFTS that include scientific papers, research projects, commercial technologies, training material and financing mechanisms for the defossilization of the agricultural sector. The aforementioned FEFTS include solutions for optimum energy management in open-field agriculture, greenhouses and livestock.

2. Display of FEFTS

The display of FEFTS is structured in an efficient way, aiming to project all important information and data of each solution in one page, in distinct text tiles, so that information retrieval is facilitated. The objective to compile all necessary information in small phrases or lists allows the reduction of the text's size, which is very significant for the proper organization of data and consequently for achieving the optimum navigation experience. Thus, for all 5 different FEFTS' information types -i.e. scientific papers, research projects, commercial technologies, training material and financing mechanisms- available information is displayed in a concrete way, which is common in each distinct type. This means that data of each distinct type are placed on the same corresponding sections for the simplification, homogeneity and harmonization of the displayed content.

1.1. Scientific paper

When a scientific paper is selected for display, user is introduced with the webpage presented in **Figure 1**. More specifically, the image or image gallery is displayed on to top left side area of the webpage. Below the image section, the general description is presented, empowered by a scrolling feature with a specific height for the area covered by the text inserted.

AGRO FOSSIL FREE

Home Instructional video **Browse FEFTS solutions** LANGUAGE EN Log in

Search

Analysis of wind turbine usage in greenhouses: wind resource assessment, distributed generation of electricity and environmental protection en

Information Provider/source Material Assessment

FEFTS Specifications

SCIENTIFIC PAPER
for Clean energy supply (Energy production system)

RENEWABLE ENERGY SOURCE
Wind

TECHNOLOGY USED
Wind turbines

SPECIAL TYPE
Small wind turbines (1-50 kW)

ENERGY PRODUCED
Electricity

SUITABLE/IDEAL FOR
AC

AGRICULTURAL DOMAIN
Greenhouses

SUITABLE FOR
Farmer, Producers association, Energy generator

APPLICATIONS
Heating and cooling of agricultural constructions

ESPECIALLY
Greenhouses

TYPE OF SOLUTION
Methodology, Procedure

AgEnergy Platform

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement ID 101000496

This AgEnergy platform has been developed only by using published material from different open access sources. The main objective of the AgEnergy platform is to facilitate the dissemination of useful information for a better application of fossil-energy-free strategies and technologies (FEFTs), and has no any commercial or comparative purposes. If you do not agree with the dissemination of the information, please contact us at info@agrofossilfree.eu

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Figure 1. Scientific paper - display overview

On the top right side area, the title of the FEFTS is placed on a colored text box, accompanied by the native language of the provider which is encoded by using the abbreviation of the language, and placed in a circle (**Figure 2**). Below the title, all 4 tabs of the FEFTS are displayed, namely, information, provider/source, material and assessment. The first tab, i.e. information, contains all FEFTS specifications in 6 text tiles that are divided in 2 rows of 3 tiles that contain diverse information. More precisely, in the first tile of the first row, the FEFTS information type is displayed in bold, with the FEFTS type, and its subcategories if exist. In the second tile, the technology used is presented, together with its dependencies (special type) if exists. Correspondingly, in the third tab of the first row, the energy produced is displayed, together with suitable/ideal type of the current energy produced.

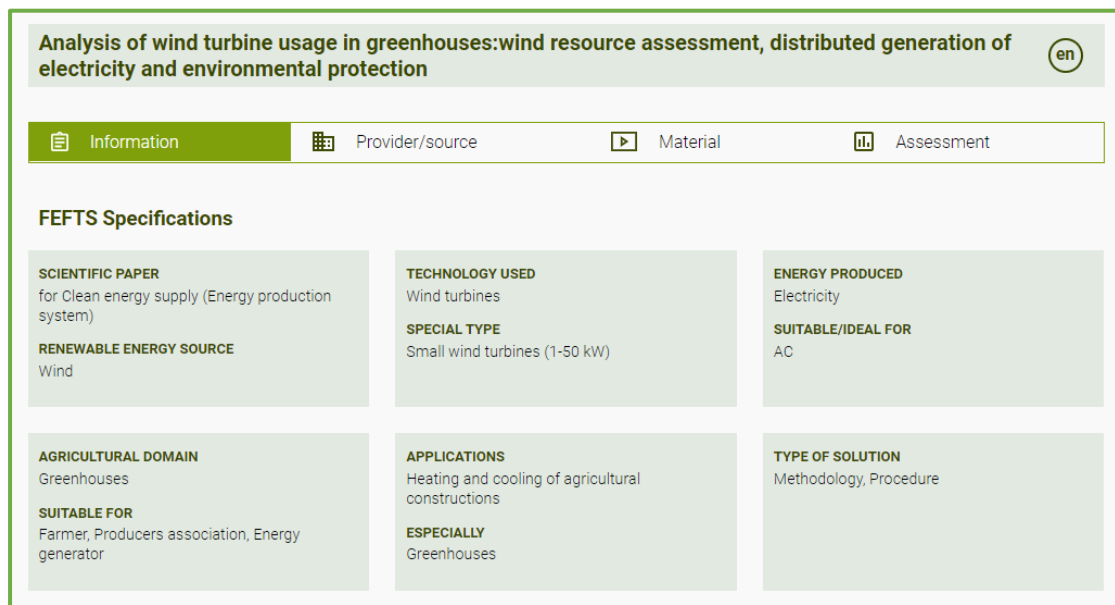
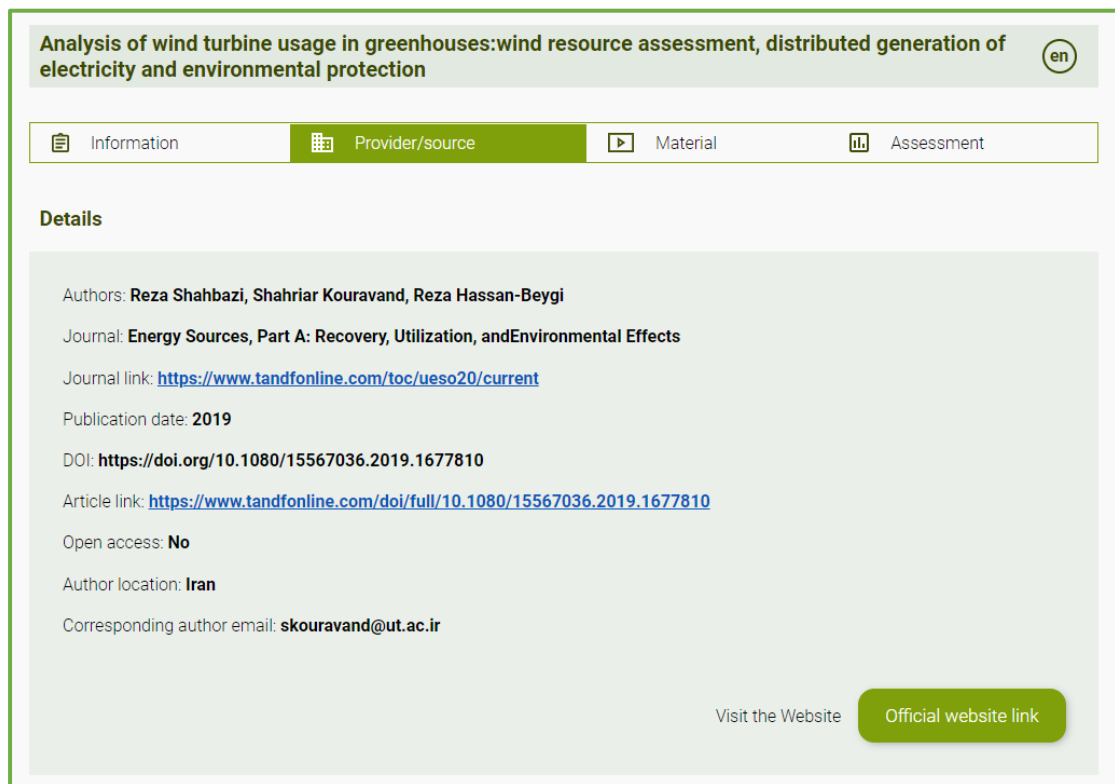


Figure 2. Scientific paper - information tab

In the second row of tiles, 3 tabs are also displayed. In the first one, the agricultural domain with further information is displayed. In the second tab, users can find information regarding the agricultural applications related to the FEFTS; while in the last tile, users can find the type of the solution, i.e. methodology, procedure, hardware, software etc.

In the second tab, namely provider/source, all details related to the scientific paper are included (**Figure 3**). Details contain fields such as the authors' names, the journal, the journal link, the publication date, the DOI link, the article link, the authors' locations, article funding source, and the corresponding author's contact details. Finally, the provider's official website link is accessible under this tab, by using the "Official website link" button that redirects to the provider's website.

The third tab is entitled material (**Figure 4**). Under this tab, users can access any relevant file, audiovisual material and video for the specific FEFTS. In case there is no available file, a dash is used in order to indicate that there is no available material.



Analysis of wind turbine usage in greenhouses: wind resource assessment, distributed generation of electricity and environmental protection (en)

Information Provider/source Material Assessment

Details

Authors: **Reza Shahbazi, Shahriar Kouravand, Reza Hassan-Beygi**

Journal: **Energy Sources, Part A: Recovery, Utilization, and Environmental Effects**

Journal link: <https://www.tandfonline.com/toc/ueso20/current>

Publication date: **2019**

DOI: <https://doi.org/10.1080/15567036.2019.1677810>

Article link: <https://www.tandfonline.com/doi/full/10.1080/15567036.2019.1677810>

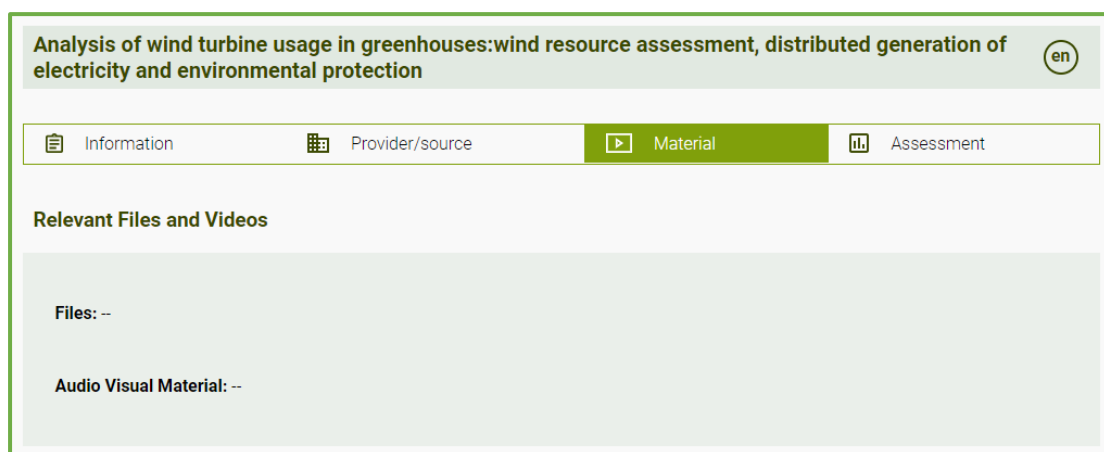
Open access: **No**

Author location: **Iran**

Corresponding author email: **skouravand@ut.ac.ir**

Visit the Website Official website link

Figure 3. Scientific paper - provider/source tab



Analysis of wind turbine usage in greenhouses: wind resource assessment, distributed generation of electricity and environmental protection (en)

Information Provider/source Material Assessment

Relevant Files and Videos

Files: --

Audio Visual Material: --

Figure 4. Scientific paper - material tab

Finally, in the last tab of the scientific papers' display, the assessment is presented (**Figure 5**). This assessment has been provided by the FEFTS owner, more precisely, the user who has registered the FEFTS. The questions of the assessment, along with the procedure of conducting the assessment have been described in detail in D4.1 "Networking facility". The presentation of the assessment includes short titles for each field, and the answer is either presented in color inside the 5 level scale, for the questions that can be answered by selecting a choice from a drop-down menu list containing the 5 levels; or presented as a list with bullets, in the case of 2 questions in the environmental assessment. The aforementioned 2 questions are developed as multiple selection fields and refer to the direct and indirect fossil energy reduction that can be achieved by the implementation, application or use of the FEFTS. However, since they both are optional for the submission of a FEFTS, it has been decided that in case they are not answered, the entire field will not

appear in the user's interface. This dynamic approach aligns with the attempt to reduce unuseful text, in order to provide users only with the essential available information.

Analysis of wind turbine usage in greenhouses: wind resource assessment, distributed generation of electricity and environmental protection
en

Information

Provider/source

Material

Assessment

Assessment

This section contains a brief assessment of the FEFTS described.

There are 3 basic categories: General, Environmental and Socioeconomic assessment.

The purpose of this assessment is to give a quick overview to the potential FEFTS user of its application benefits.

For each question, the Likert scale is used with the following possible answers:

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

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:

Environmental

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

- Buildings electricity consumption
- Buildings heat use
- Buildings cooling needs

The application of this FEFTS contributes to GHG emissions reduction:

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):

Keep in mind that this assessment is subjective, based on publicly available information.

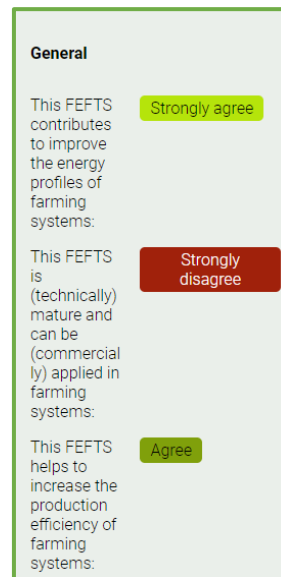
All registered users are asked to evaluate each FEFTS and when an adequate number of reviews is gathered the results depicted here are updated. Each review is screened in order to avoid malicious practices.

FEFTS providers who do not agree with the assessment results, can send their inquiry to info@agrofossilfree.eu and a direct action based on their petition will be taken.

Figure 5. Scientific paper - assessment tab

An additional feature of the assessment's structure deployment is that in small monitors, mobile phones and tablets, the possible answers of the 5 level scale hide, and only the given

answer remains displayed (**Figure 6**). This functionality allows a user-friendly experience in all different types of screens.



General

This FEFTS contributes to improve the energy profiles of farming systems: **Strongly agree**

This FEFTS is (technically) mature and can be (commercially) applied in farming systems: **Strongly disagree**

This FEFTS helps to increase the production efficiency of farming systems: **Agree**

Figure 6. Assessment tab in smartphone screen size

It is worth mentioning that the platform is considered to be an alive tool. Thus, constant improvement are going to be applied for the amelioration of User's Experience (UX). Since the platform may undergo minor amendments for the refinement of both its content and its Graphical User Interface (GUI), changes may occur aiming to present the most useful information and provide a realistic overview of the FEFTS solutions in the best way for increasing the intuitiveness in terms of software developing.

Additionally before the official public release of the platform, a button will be added in the assessment tab, in order to enable user to evaluate the FEFTS, according to his/her opinion. Results will not be directly published, aiming to ensure the integrity of the platforms content with due care and attention. However, the project's consortium will have access to the submitted evaluation forms through the administration panel of the platform (private interface for inside use by the project's partners). This essential aspect is seriously taken into consideration with reasonable care and diligence by AgroFossilFree consortium, for the maintenance of impartiality in the process of knowledge diffusion and transfer.

1.2. Research project

When a research project is selected for display, user is introduced with the webpage presented in **Figure 7**. The interface is the same as previously mentioned in the case of scientific papers, while is also the same for the rest of the different FEFTS information types.

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Home Instructional video **Browse FEFTS solutions** LANGUAGE EN Log in

Search

A cost-effective process for methanisation of unexploited agricultural waste. (en)

Information Provider/source Material Assessment

FEFTS Specifications

RESEARCH PROJECT for Clean energy supply (Energy production system) RENEWABLE ENERGY SOURCE Biomass	TECHNOLOGY USED Biogas/biomethane production SPECIAL TYPE Anaerobic digestion technologies	ENERGY PRODUCED Chemical energy SUITABLE/IDEAL FOR Gaseous fuels
AGRICULTURAL DOMAIN Open-field agriculture, Livestock SUITABLE FOR Farmer, Energy generator	APPLICATIONS Energy provision ESPECIALLY Biogas/biomethane	TYPE OF SOLUTION Procedure

General Description

Biogas production level in the EU has grown considerably in the past ten years to over 16 Mtoe, with optimistic forecasts predicting that by 2030 Europe will produce over 40 Mtoe. Problem The production of biomethane from organic waste matter faces a series of practical problems which are holding back its growth: - Cannot treat all wastes. Straw waste represents a massive biogas potential, but less than 5% is currently used for Biogas production. - Foreign objects often enter into the system, causing damage and increasing maintenance costs. - Have high energy costs. - Require several treatment stages, which increase the CAPEX and OPEX. Solution - the DualMetha Plant We have developed and patented a simplified, biomethane production process that cuts down some of the waste

AgEnergy Platform

Find
Terms of services
Contact
Official project website

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement ID 1010004495

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Figure 7. Research project - display overview

The same 4 tabs are again displayed with the first tab containing the same information (**Figure 8**), but the second tab referring to provider/source contains different information that are related to the research project (**Figure 9**).

Data displayed in the provider/source tab refer to the project's acronym, to the project's funding type and source, to the project coordinator name, location and contact details, to the status of the project and its budget, as well as to further available related websites. The official website link button is also available.

A cost-effective process for methanisation of unexploited agricultural waste. (en)

Information Provider/source Material Assessment

FEFTS Specifications

RESEARCH PROJECT for Clean energy supply (Energy production system) RENEWABLE ENERGY SOURCE Biomass	TECHNOLOGY USED Biogas/biomethane production SPECIAL TYPE Anaerobic digestion technologies	ENERGY PRODUCED Chemical energy SUITABLE/IDEAL FOR Gaseous fuels
AGRICULTURAL DOMAIN Open-field agriculture, Livestock SUITABLE FOR Farmer, Energy generator	APPLICATIONS Energy provision ESPECIALLY Biogas/biomethane	TYPE OF SOLUTION Procedure

Figure 8. Research project - information tab

The screenshot shows a web interface for a research project. At the top, the title "A cost-effective process for methanisation of unexploited agricultural waste." is displayed in a light green bar, followed by a language selector "en" in a circle. Below the title is a navigation bar with four tabs: "Information", "Provider/source" (which is highlighted in green), "Material", and "Assessment". The main content area is titled "Details" and contains the following information:

- Project's acronym: **DualMetha**
- Project funding type: **EU**
- Project funding source: **H2020**
- Project coordinator: **DUAL METHA**
- Coordinator location: **France**
- Coordinator email / Contact form: **contact@dualmetha.com; yann.mercier@dualmetha.com, philippe.perrette@dualmetha.com**
- Project status: **Finished**
- Total budget: **71429**

Below the details, there is a section titled "Other websites" with a single bullet point containing the URL <https://cordis.europa.eu/project/id/827977>. At the bottom right, there is a button labeled "Official website link" and a link text "Visit the Website".

Figure 9. Research project - provider/source tab

The material (**Figure 10**) and assessment (**Figure 11**) tabs follow the structure that is previously described for scientific papers with no further deviation.

The screenshot shows the same web interface as Figure 9, but with the "Material" tab highlighted in the navigation bar. The main content area is titled "Relevant Files and Videos" and contains two sections:

- Files:** --
- Audio Visual Material:** --

Figure 10. Research project - material tab

A cost-effective process for methanisation of unexploited agricultural waste. en

Information
Provider/Source
Material
Assessment

Assessment

This section contains a brief assessment of the FEFTS described.

There are 3 basic categories: General, Environmental and Socioeconomic assessment.

The purpose of this assessment is to give a quick overview to the potential FEFTS user of its application benefits.

For each question, the Likert scale is used with the following possible answers:

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

General

This FEFTS contributes to improve the energy profiles of farming systems:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
This FEFTS is (technically) mature and can be (commercially) applied in farming systems:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
This FEFTS helps to increase the production efficiency of farming systems:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
The description of this FEFTS was very helpful:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree

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:

- Tractors and vehicles fuel consumption
- Manure reduction

Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
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Socioeconomic

The application of this FEFTS contributes to cost reductions of farming systems:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
The application of this FEFTS contributes to the local economy:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
This FEFTS can be also applied jointly by a group of farmers (not only by a single farmer):	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree

Keep in mind that this assessment is subjective, based on publicly available information.

All registered users are asked to evaluate each FEFTS and when an adequate number of reviews is gathered the results depicted here are updated. Each review is screened in order to avoid malicious practices.

FEFTS providers who do not agree with the assessment results, can send their inquiry to info@agrofossilfree.eu and a direct action based on their petition will be taken.

Figure 11. Research project - assessment tab

1.3. Commercial technology

When a commercial technology is selected for display, user is introduced with the webpage presented in **Figure 12**. The interface is the same as previously mentioned in the case of scientific papers and research projects, and is also the same for the rest of the different FEFTS information types.

The screenshot displays the AgroFossilFree website interface. At the top, there is a navigation bar with links for 'Home', 'Instructional video', and 'Browse FEFTS solutions'. A search bar is located on the right side of the header. The main content area is titled 'Barsha Pump' and features a large image of the pump in operation. Below the image, there is a 'General Description' section. To the right of the image, there are four tabs: 'Information', 'Provider/source', 'Material', and 'Assessment'. The 'Information' tab is currently selected, showing 'FEFTS Specifications' in a grid format. The specifications include details on commercial technology, renewable energy source, agricultural domain, suitability, technology used, special type, energy produced, applications, and type of solution. At the bottom of the page, there is a section for the 'AgEnergy Platform' with a disclaimer and social media links.

AGRO FOSSIL FREE

Home Instructional video Browse FEFTS solutions LANGUAGE EN Log in

Search

Barsha Pump

Information Provider/source Material Assessment

FEFTS Specifications

COMMERCIAL TECHNOLOGY for Clean energy supply (Energy production system) RENEWABLE ENERGY SOURCE Hydro	TECHNOLOGY USED Hydropower SPECIAL TYPE Run-of-the-river	ENERGY PRODUCED Mechanical energy SUITABLE/IDEAL FOR Stationary applications
AGRICULTURAL DOMAIN Open-field agriculture SUITABLE FOR Farmer, Producers association, Energy generator	APPLICATIONS Agricultural field practices ESPECIALLY Irrigation	TYPE OF SOLUTION Hardware, Complete solution

General Description

The Barsha Pump is the first type of hydro-powered pump developed by aOjsta. It is a water wheel propelled pump that utilizes the energy from the flow of rivers and canals to pump water without requiring any fuel or electricity to be operated. Depending upon the soil, crop, climatic conditions, and irrigation technique, one Barsha Pump can irrigate up to 2 hectares of land. Although optional, it is recommended to use the Barsha Pump in integration with the storage system and efficient water distribution techniques such as sprinkler system, drip system, etc. as it helps irrigate the larger area with one Barsha Pump. For different variants of the Barsha Pump and technical specifications, please check the section below.

AgEnergy Platform

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Figure 12. Commercial technology - display overview

The same 4 tabs are displayed again with the first tab containing the same information (**Figure 13**), but the second tab referring to provider/source contains different information that are related to the research project (**Figure 14**).

Data displayed in the provider/source tab refer to the company name, the official company name, the address of the company, the company size based on the number of employees, as well as to further available related websites. The official website link button is also available.

Barsha Pump en

Information Provider/source Material Assessment

FEFTS Specifications

COMMERCIAL TECHNOLOGY
for Clean energy supply (Energy production system)

RENEWABLE ENERGY SOURCE
Hydro

TECHNOLOGY USED
Hydropower

SPECIAL TYPE
Run-of-the-river

ENERGY PRODUCED
Mechanical energy

SUITABLE/IDEAL FOR
Stationary applications

AGRICULTURAL DOMAIN
Open-field agriculture

SUITABLE FOR
Farmer, Producers association, Energy generator

APPLICATIONS
Agricultural field practices

ESPECIALLY
Irrigation

TYPE OF SOLUTION
Hardware, Complete solution

Figure 13. Commercial technology - information tab

Barsha Pump en

Information Provider/source Material Assessment

Details

Company name: **aQysta**

Official company name: **aQysta B.V.**

Address: **Molengraaffsingel 12-14 2629JD Delft (YES!Delft), 2629JD, Delft (high-tech incubator YES!Delft), Netherlands**

Company size: **11 to 50 employees**

Other websites

- <https://www.aqysta.com/>

Visit the Website Official website link

Figure 14. Commercial technology - provider/source tab

Regarding material (**Figure 15**) and assessment (**Figure 16**) tabs, no further differences exist in comparison to the previously described content of the specific tabs.

Barsha Pump

en

Information

Provider/source

Material

Assessment

Relevant Files and Videos

Files:

- https://platform.agrofossilfree.eu/storage/fefts/files/additional_files/Barsha-Brochure-MK5-Final_English_Print-2020_Global-Split_lite - Konstantinos Vaicopoulos.pdf
- https://www.agvsta.com/wp-content/uploads/2018/06/barsha-brochure-mk5-final_english_print-2020-global_split_lite.pdf

Audio Visual Material:

- <https://www.agvsta.com/home/photos-videos/>
- https://www.youtube.com/watch?v=ya8lvcw_v2m
- <https://youtu.be/whijxm4akc>

Figure 15. Commercial technology - material tab

Barsha Pump

en

Information

Provider/source

Material

Assessment

Assessment

This section contains a brief assessment of the FEFTS described.

There are 3 basic categories: General, Environmental and Socioeconomic assessment.

The purpose of this assessment is to give a quick overview to the potential FEFTS user of its application benefits.

For each question, the Likert scale is used with the following possible answers:

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

General

This FEFTS contributes to improve the energy profiles of farming systems:

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

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

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

This FEFTS helps to increase the production efficiency of farming systems:

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

The description of this FEFTS was very helpful:

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

Environmental

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

- Tools and equipment electricity consumption
- Tools and equipment fuel consumption

The application of this FEFTS contributes to GHG emissions reduction:

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

Socioeconomic

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

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

The application of this FEFTS contributes to the local economy:

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

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

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

Keep in mind that this assessment is subjective, based on publicly available information.

All registered users are asked to evaluate each FEFTS and when an adequate number of reviews is gathered the results depicted here are updated. Each review is screened in order to avoid malicious practices.

FEFTS providers who do not agree with the assessment results, can send their inquiry to info@agrofossilfree.eu and a direct action based on their petition will be taken.

Figure 16. Commercial technology - assessment tab

1.4. Training material

When a training material is selected for display, user is introduced with the webpage presented in **Figure 17**. The interface is the same as previously mentioned in the case of scientific papers, research projects and commercial technologies, while is also the same for the rest of the different FEFTS information types.

The screenshot shows the AgroFossilFree website interface. At the top, there is a navigation bar with 'Home', 'Instructional video', and 'Browse FEFTS solutions'. A search bar is on the right. The main content area is titled 'AGRIVOLTAICS: OPPORTUNITIES FOR AGRICULTURE AND THE ENERGY TRANSITION'. Below this, there are four tabs: 'Information', 'Provider/source', 'Material', and 'Assessment'. The 'Information' tab is active, displaying 'FEFTS Specifications' in a grid format. The specifications include: TRAINING MATERIAL (for Clean energy supply), RENEWABLE ENERGY SOURCE (Solar), TECHNOLOGY USED (Photovoltaics), SPECIAL TYPE (Agri-PV systems), ENERGY PRODUCED (Electricity), SUITABLE/IDEAL FOR (AC), AGRICULTURAL DOMAIN (Open-field agriculture), SUITABLE FOR (Farmer, Companies), APPLICATIONS (Energy provision), ESPECIALLY (Electricity feed-in), and TYPE OF SOLUTION (Hardware). On the left, there is a 'General Description' section with an illustration of an agrivoltaic system and a 'General Description' text. At the bottom, there is an 'AgEnergy Platform' section with links to FAQ, Terms of services, Cookies, and Official project website, along with a disclaimer and social media icons.

Figure 17. Training material - display overview

The same 4 tabs are displayed again with the first tab containing the same information (**Figure 18**Figure 13), but the second tab referring to provider/source contains different information that are related to training material (**Figure 19**).

The screenshot shows the 'Information' tab of the 'AGRIVOLTAICS: OPPORTUNITIES FOR AGRICULTURE AND THE ENERGY TRANSITION' page. The tabs are 'Information', 'Provider/source', 'Material', and 'Assessment'. The 'Information' tab is active, displaying 'FEFTS Specifications' in a grid format. The specifications include: TRAINING MATERIAL (for Clean energy supply), RENEWABLE ENERGY SOURCE (Solar), TECHNOLOGY USED (Photovoltaics), SPECIAL TYPE (Agri-PV systems), ENERGY PRODUCED (Electricity), SUITABLE/IDEAL FOR (AC), AGRICULTURAL DOMAIN (Open-field agriculture), SUITABLE FOR (Farmer, Companies), APPLICATIONS (Energy provision), ESPECIALLY (Electricity feed-in), and TYPE OF SOLUTION (Hardware).

Figure 18. Training material - information tab

The screenshot shows the 'Provider/source' tab selected in the AGRIVOLTAICS training material interface. The header bar is green with the title 'AGRIVOLTAICS: OPPORTUNITIES FOR AGRICULTURE AND THE ENERGY TRANSITION' and a language selector 'de'. Below the header, there are four tabs: 'Information', 'Provider/source' (selected), 'Material', and 'Assessment'. The main content area is titled 'Details' and contains the following information:

- Developing organization: **Fraunhofer-Institut für Solare Energiesysteme ISE**
- Location: **Germany**
- Material type: **Manual**

Below this, there is an 'Additional info' section with two paragraphs of text. At the bottom right, there are two buttons: 'Visit the Website' and 'Official website link'.

Figure 19. Training material - provider/source tab

More specifically, data displayed in the provider/source tab refer to the name of the developing organization, its location, the type of the material, and any possible additional information available. The official website link button is also available. Regarding material (**Figure 20**) and assessment (**Figure 21**) tabs, no further differences exist in comparison to the previously described content of the specific tabs.

The screenshot shows the 'Material' tab selected in the AGRIVOLTAICS training material interface. The header bar is green with the title 'AGRIVOLTAICS: OPPORTUNITIES FOR AGRICULTURE AND THE ENERGY TRANSITION' and a language selector 'de'. Below the header, there are four tabs: 'Information', 'Provider/source', 'Material' (selected), and 'Assessment'. The main content area is titled 'Relevant Files and Videos' and contains the following information:

- Files:**
 - [https://platform.agrofossilfree.eu/storage/fefts/files/additional_files/APV-Guideline\(1\) - WIP Renewable Energies.pdf](https://platform.agrofossilfree.eu/storage/fefts/files/additional_files/APV-Guideline(1) - WIP Renewable Energies.pdf)
 - <https://www.ise.fraunhofer.de/content/dam/ise/en/documents/publications/studies/apv-guideline.pdf>
- Audio Visual Material:**
 - <https://www.ise.fraunhofer.de/content/dam/ise/en/documents/publications/studies/apv-guideline.pdf>

Figure 20. Training material - material tab

AGRIVOLTAICS: OPPORTUNITIES FOR AGRICULTURE AND THE ENERGY TRANSITION

de

Information

Provider's source

Material

Assessment

Assessment

This section contains a brief assessment of the FEFTS described.

There are 3 basic categories: General, Environmental and Socioeconomic assessment.

The purpose of this assessment is to give a quick overview to the potential FEFTS user of its application benefits.

For each question, the Likert scale is used with the following possible answers:

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

General

This FEFTS contributes to improve the energy profiles of farming systems:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
This FEFTS is (technically) mature and can be (commercially) applied in farming systems:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
This FEFTS helps to increase the production efficiency of farming systems:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
The description of this FEFTS was very helpful:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree

Environmental

The application of this FEFTS directly reduces fossil energy use, in terms of: <ul style="list-style-type: none"> Buildings electricity consumption Buildings heat use Buildings cooling needs 	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
The application of this FEFTS indirectly reduces fossil energy use, in terms of: <ul style="list-style-type: none"> renewable energy sales to external markets 	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree

Socioeconomic

The application of this FEFTS contributes to cost reductions of farming systems:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
The application of this FEFTS contributes to the local economy:	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree
This FEFTS can be also applied jointly by a group of farmers (not only by a single farmer):	Strongly disagree	Disagree	Neutral/non applicable	Agree	Strongly agree

Keep in mind that this assessment is subjective, based on publicly available information.

All registered users are asked to evaluate each FEFTS and when an adequate number of reviews is gathered the results depicted here are updated. Each review is screened in order to avoid malicious practices.

FEFTS providers who do not agree with the assessment results, can send their inquiry to info@agrofossilfree.eu and a direct action based on their petition will be taken.

Figure 21. Training material - assessment tab

1.5. Financing mechanism

When a financing mechanism is selected for display, user is introduced with the webpage presented in **Figure 22**. The interface is the same as previously mentioned in the cases of the rest FEFTS information types.

AGRO FOSSIL FREE

Home Instructional video **Browse FEFTS solutions** LANGUAGE EN Log in

Search

Agricultural Photovoltaics

Information Provider/source Material Assessment

FEFTS Specifications

FINANCING MECHANISM for Clean energy supply (Energy production system) RENEWABLE ENERGY SOURCE Solar	TECHNOLOGY USED Photovoltaics SPECIAL TYPE Agri-pv systems	ENERGY PRODUCED Electricity SUITABLE/IDEAL FOR AC
AGRICULTURAL DOMAIN Open-field agriculture, Livestock, Greenhouses SUITABLE FOR Farmer, Producers association	APPLICATIONS Energy provision ESPECIALLY Electricity feed-in	TYPE OF SOLUTION Hardware

AgEnergy Platform

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FAQ
Terms of service
Cookies
Official project website

This AgEnergy platform has been developed only by using published material from different open access sources. The main objective of the AgEnergy platform is to facilitate the dissemination of useful information for a better application of fossil energy-free strategies and technologies (FEFTS), and has no any commercial or comparative purposes. If you do not agree with the dissemination of the information, please contact us at info@agrofossilfree.eu

Created by **AGRO FOSTIL FREE**

f t i n

Figure 22. Financing mechanism - display overview

The same 4 tabs are displayed again with the first tab containing the same information (**Figure 23** **Figure 13**), but the second tab referring to provider/source contains different information that are related to financing mechanisms (**Figure 24**).

Agricultural Photovoltaics

Information **Provider/source** Material Assessment

FEFTS Specifications

FINANCING MECHANISM for Clean energy supply (Energy production system) RENEWABLE ENERGY SOURCE Solar	TECHNOLOGY USED Photovoltaics SPECIAL TYPE Agri-pv systems	ENERGY PRODUCED Electricity SUITABLE/IDEAL FOR AC
AGRICULTURAL DOMAIN Open-field agriculture, Livestock, Greenhouses SUITABLE FOR Farmer, Producers association	APPLICATIONS Energy provision ESPECIALLY Electricity feed-in	TYPE OF SOLUTION Hardware

Figure 23. Financing mechanism - information tab

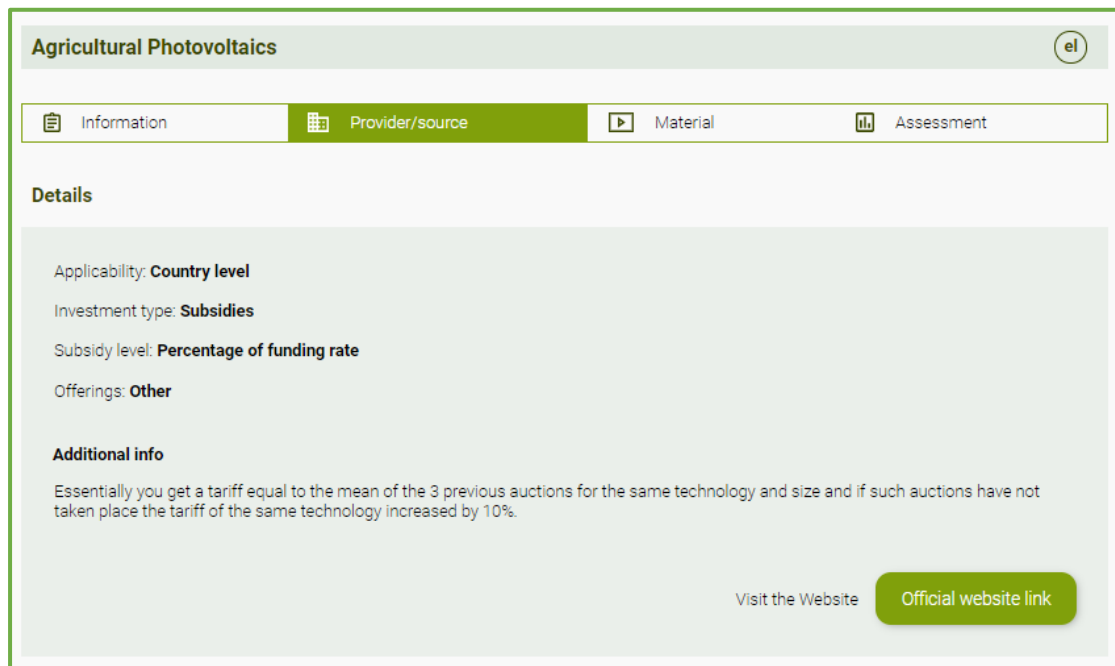


Figure 24. Financing mechanism - provider/source tab

More specifically, data displayed in the provider/source tab refer to the applicability region of the mechanism, to the investment type, to the subsidy level, to the offerings of the mechanism, and any available additional information. The official website link button is also available.

Regarding material (Figure 25) and assessment (Figure 26) tabs, no further differences exist in comparison to the previously described content of the specific tabs.

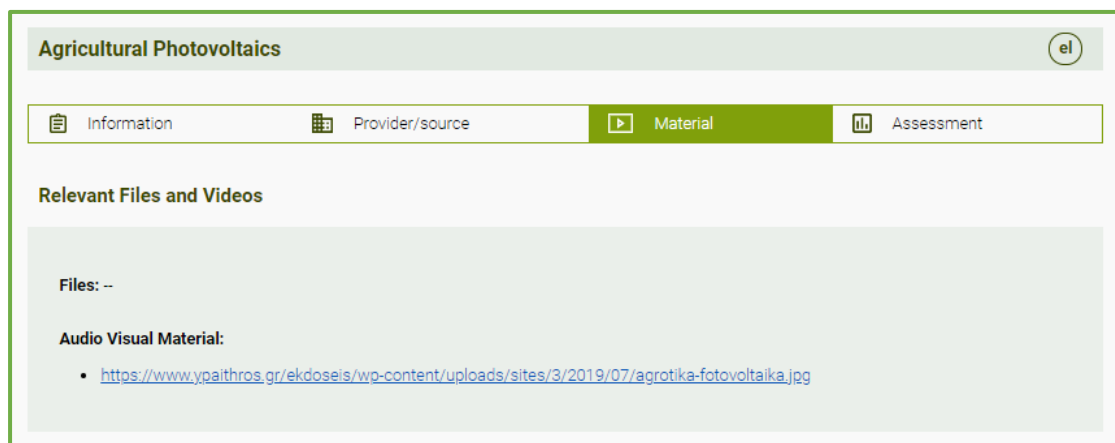


Figure 25. Financing mechanism - material tab

Agricultural Photovoltaics
el

Information
Provider/Source
Material
Assessment

Assessment

This section contains a brief assessment of the FEFTS described.

There are 3 basic categories: General, Environmental and Socioeconomic assessment.

The purpose of this assessment is to give a quick overview to the potential FEFTS user of its application benefits.

For each question, the Likert scale is used with the following possible answers:

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

General

This FEFTS contributes to improve the energy profiles of farming systems:

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

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

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

This FEFTS helps to increase the production efficiency of farming systems:

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

The description of this FEFTS was very helpful:

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

Environmental

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

- renewable electricity generation

The application of this FEFTS contributes to GHG emissions reduction:

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

Socioeconomic

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

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

The application of this FEFTS contributes to the local economy:

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

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

Strongly disagree Disagree Neutral/non applicable Agree Strongly agree

Keep in mind that this assessment is subjective, based on publicly available information.

All registered users are asked to evaluate each FEFTS and when an adequate number of reviews is gathered the results depicted here are updated. Each review is screened in order to avoid malicious practices.

FEFTS providers who do not agree with the assessment results, can send their inquiry to info@agrofossilfree.eu and a direct action based on their petition will be taken.

Figure 26. Financing mechanism - assessment tab

2. Conclusions

In the current deliverable, an overview of the FEFTS display has been provided, aiming explain the structure and deployment of the final display step in a query procedure in the AgEnergy platform. Display of all 5 different FEFTS information types has been described, allowing the understanding between the differences amongst display of the distinct information types. Display functionalities have carefully been selected and applied, aiming to

provide the best possible user experience to the platforms visitors and enhance knowledge transfer.