ALFA

UNLOCKING THE BIOGAS POTENTIAL OF LIVESTOCK FARMING

# D2.7

# ALFA Market Uptake Support Measures – Final Version

**SIE**

**31 / 07 / 2025**

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## ABBREVIATIONS

| | |
|---|---|
| AB | Advisory Board |
| ARC | Awareness Raising Campaign |
| CAPEX | Capital Expenditure |
| C&D | Communication and Dissemination |
| CCWs | Co-creation Workshops |
| DoA | Description of Action |
| DST | Decision Support Tool |
| ESG | Environmental, Social and Governance |
| GA | Grant Agreement |
| IRR | Internal Nate of Return |
| KPI | Key Performance Indicator |
| LCA | Lifecycle Assessment |
| M | Project month |
| NPV | Net Present Value |
| OPEX | Operating Expenditure |
| ROI | Return on Investment |
| ToR | Terms of Reference |
| WP | Work Package |

# Executive Summary

This report outlines the final iteration of ALFA's market uptake support measures designed to accelerate the adoption of biogas in the livestock farming sector across Europe. The ALFA project deployed a suite of tailored services, awareness campaigns, and capacity building activities to support farmers and stakeholders in overcoming barriers for the implementation of biogas solutions.

The following sections consolidate the learnings and updates from two rounds of support delivery, including adjustments based on stakeholder feedback, service provider insights, and validation through an external Advisory Board. **A total of 5 financial and business and 6 technical support services were designed and deployed; surpassing achievement indicators set in the DoA.** In general, demand for the services exceeded expectations, as many awardees required multiple customized services, emphasizing the sector's pressing need for accessible expertise.

**The ALFA consortium deployed 7 international webinars and 6 regional seminars, with a total of nine capacity building topics developed, again surpassing key performance indicators and enhancing knowledge dissemination.** These capacity building efforts were shaped by lessons learned throughout the project's lifetime, focusing on the value of regional language delivery, locally tailored content, and engagement through trusted networks.

**A total of 12 awareness raising campaigns, 6 per round, were deployed using a mix of digital and on-site outreach methods, reaching the achievement indicators as expected.** Engagement increased through strategies such as farmer-to-farmer advice, leveraging existing agricultural events, and promoting inclusivity (e.g., highlighting women and young farmers in biogas). Despite challenges in data collection and language barriers, feedback showed improved public awareness and social acceptance of biogas solutions.

**The final conclusions highlight the high replicability and necessity of the ALFA services across EU regions. There remains a substantial need for continued support, particularly technical consultancy, due to persistent knowledge gaps among farmers transitioning to renewable energy solutions.**

The main changes in this final version can be found in:

- Section 2: Addition of a table specifying relation between partner's expertise and services designed, update of service provider table, update of services and lessons learnt.
- Section 3: Update of lessons learnt and update of seminar and webinar programmes.
- Section 4: Update of lessons learnt and ARCs.
- Section 5: Update of conclusions and addition of recommendations for replication.

# 1. Introduction

The aim of task 2.4 was the iterative development of the ALFA market uptake support measures, running from M10-M33. In the first version of this deliverable (*D2.4*), a first approach was developed of the ALFA support services, including the definition of each service, the process to apply them, scope and materials for implementation, as well as for the capacity building programmes, and for the awareness raising campaigns (ARCs). And intermediate version followed (*D2.5*) with the updates after the conclusion of the 1st round, as it was necessary to evaluate the performance of the support measures to fine-tune ALFA's offerings.

This version includes the final updates of the market uptake measures for the ALFA project, including the learnings from both rounds of the provision of services and the deployment of the webinars, seminars and ARCs.

The contents of this deliverable have been produced by gathering satisfaction surveys during both iterations on the service provision and capacity building sessions (both from awardees, attendees and internal feedback from project partners) as well as taking into consideration the 1st and 2nd external validation workshops held with the advisory board (AB).

More details on the validation with the AB, evaluation framework, and how the feedback was gathered can be found in ***D4.2 – Report on evaluation of market uptake support measures – Second Round.***

More details about the results of the 2nd Open Call, including the details of the services implemented, capacity building sessions, ARC and operational details can be found in ***D3.4 – Report on deployment of ALFA Support Measures – Second Round, D3.3 – ALFA Operational Plans for the deployment of support services – Final Version*** and ***D4.2 – Report on evaluation of the market uptake measures – Secon Round.***

# 2. ALFA Support Services

The ALFA support services were one of the main tools used during the project to support farmers and other stakeholders in the road to adopt biogas technologies. At the proposal stage, partners were carefully selected for their varied expertise and capability to provide these types of services:

- Some focus on the technical side (FBCD, CERTH & A0CO2), providing consultancy services and in-depth assessments in terms of renewable energy and the use of biogas and biomethane, as well as LCA analyses.
- Other focus on business and access to finance consultancy (PEDAL, QPLAN, FBCD, WR, APRE & SIE), offering customized analysis on market and competitive analysis, financial projections and business modelling.
- And finally, the organizations that focus on networking and lean more towards policymaking activities (EDF & EBA), who have created many valuable networks across Europe and who also conduct detailed analyses at European level on livestock farming and renewable energy approaches related to biogas and biomethane.

When defining the services for the first time on M13, the consortium followed a strategy that involved the creation of two roles: **the service manager** and **the service provider**.

The service manager was considered the leader of a certain service, and was responsible of defining its scope, materials needed, and procedures together with SIE as task leaders. This role was assigned during an all-partner meeting, where all services proposed were revised, and then the partners with the relevant expertise could propose themselves as service managers.

The other role, the service provider, was defined as applicable to all the partners that had relevant expertise, meaning they could implement a certain service.

The table below shows a summary of what was decided regarding these roles, with the adjustments made for the 2nd round.

**Table 1: Service managers and providers list**

| Type of service | Service # | Service name | Service manager | Service providers | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | QPL | FBCD | APRE | PED | WR | SIE | CERTH | A0CO2 | EBA | EDF |
| Business & access to finance | 1 | Market research | SIE | X | X | X | X | X | X | | | | |
| | 2 | Business modelling and planning | SIE | X | X | X | X | X | X | | | | |
| | 3 | Access to finance support | PEDAL | X | X | X | X | X | X | | | | |
| | 4 | Corporate and sustainable finance | QPL | X | X | X | X | X | X | | | | |
| | 5 | Farmer-to-farmer advice | QPL | X | X | X | X | X | X | X | X | X | X |
| Technical support | 6 | Concept design and development of biogas systems | FBCD | | X | X | | | | X | X | | |

| Type of service | Service # | Service name | Service manager | Service providers | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | QPL | FBCD | APRE | PED | WR | SIE | CERTH | A0CO2 | EBA | EDF |
| | 7 | Evaluation of biogas potential based on preliminary calculations | FBCD | | X | X | | | | X | X | | |
| | 8 | Energy and environmental analyses assessing the energy and carbon footprint across the lifecycle | CERTH | | | | | | | X | | | |
| | 9 | Consultancy on the implementation and monitoring of biogas solutions | CERTH | | | X | | | | X | | | |
| | 10 | Technical support for farmers in the evaluation and comparison of plant suppliers' quotes | A0CO2 | | X | | | | | X | X | | |
| | 11 | Technology catalogue: features of cleaning and upgrading equipment | A0CO2 | | | | | | | | X | | |

The two main updates were: (1) thanks to the support of a biomethane expert in their network, APRE was able to act as service provider for technical support in the 2nd round, especially for services 6, 7 and 9; and (2) EDF and EBA also provided support for partners by using their farmer and expert networks to provide input regarding their activities.

Regarding the processes followed to identify the best service provider for each awardee, these were done via (1) fist matching – awardee with service, and (2) second matching – awardee with service provider. See the table below for more details on each of the partners' expertise in relation to the service definition and implementation.

**Table 2: Partner's expertise in relation to services designed**

| Partner | Organization Expertise | Partner contribution to service implementation |
|---|---|---|
| APRE | Supports innovation, international cooperation, and public engagement in R&I. Has a network of 130+ members across the EU (incl. market, financial, research and public actors). | APRE acted as service provider of the following services:<br>1st round: Service provider of 3xS7 and 2xS3.<br>2nd round: Service provider of 2xS6, S9, and S10.<br><br>APRE's expertise and strong networks allowed them to be able to provide business and financial services as well as technical services, thanks to collaboration with biomethane experts in their network. This allowed them to provide business modelling and access to finance services in the 1st round, and to |

| Partner | Organization Expertise | Partner contribution to service implementation |
|---|---|---|
| | | support on the technical side for the 2nd round, via providing consultancy on the implementation of biogas solutions, support for comparing quotes and concept design and development of biogas systems. |
| CERTH | One of the largest research centres in GR with a great reputation in the biomass/ bioenergy sectors. Capacity to develop cross-sector collaborations supporting all sides with our technical expertise. | CERTH acted as service provider of the following services:<br>1st round: Service provider 2xS9 and S7.<br>2nd round: Service provider of 5xS7, 2xS9, 2xS6, S8, S5.<br><br>With CERTH's expertise, they were able to offer support focused on the technical side, including strong support on the consultancy for implementation of biogas solutions, operation and maintenance, as well as evaluation of biogas potential through preliminary calculations and LCA analysis. |
| SIE | Sustainable Innovations is Spanish consultancy dedicated to facilitating the market uptake of R&D projects, where each potential technology is analysed to pinpoint strengths and weaknesses in order to create a high-impact plan by establishing feasible paths for organizations to promote their innovations under a sustainable and circular economy thinking. | Sustainable Innovations was a provider of the following ALFA services:<br>1st round: Service provider of 2xS3.<br>2nd round: Service provider of S1, S3, S5/S7.<br><br>With SIE's expertise, they offered mainly support in access to finance, which as an innovation consultancy is one of their strong points. Also, they supported cases via market research of relevant technologies and analysis of the relevant state-of-the-art and supported other cases in terms of translation and gathering of information and support to the main service provider. |
| A0CO2 | ESCO with strong experience in tech support for energy efficiency and renewable energy. Expert in feasibility studies, financial assessment, biogas plant dimensioning and design. | A0CO2 provided support as service provider in the following services:<br>1st round: Service provider of S7, 3xS6.<br>2nd round: Service provider of 2xS5, 2xS7, 5xS11, S2.<br>With A0CO2's expertise focusing more on the technical support, consultancy services were provided in terms of concept design and development of biogas systems, technical support in analysing quotes, on the implementation of biogas solutions, operation and maintenance, and on preliminary calculations of biogas potential. |
| QPL | Project management and coordination/innovation management (>50 EU projects). Strong links and expertise in the | QPLAN provided support as service provider for:<br>1st round: Service provider of 4xS4.<br>2nd round: Service provider of 2xS2, S4. |

| Partner | Organization Expertise | Partner contribution to service implementation |
|---|---|---|
| | bioenergy sector. Honed expertise in monitoring and evaluation. | With QPLAN's expertise focusing more on the business side, they were able to provide support to awardees in terms of business modelling and corporate sustainable finances. |
| PEDAL | Expertise in innovation supports businesses in energy and in knowledge transfer activities. Direct access to a large pool of local market actors in the Renewable Energy sector. | PEDAL provided support as service provider for:<br>1st round: Service provider of 2xS1, 2xS3.<br>2nd round: Service provider of S1.<br>With PEDAL's expertise focusing on business and access to finance, they were able to provide support in terms of market research and access to finance. Also, they complemented these business services with additional value provided by external stakeholders in order to provide a more customised experience. |
| FBCD | Cluster with 300+ members, 5 physical locations across DK and 900 newsletters recipients Participates in 40 R&I projects, organises 100+ annual events and hosts 50+ incubating start-ups. | FBCD provided support as a service provider for:<br>1st round: Service provider of S2, S6, S7. 2nd round: Service provider of S5, S8, S11, 2xS6, 2xS7.<br>With FBCD's expertise focusing on both the technical and business side, they were able to offer holistic approaches to the awardees in terms of evaluating their biogas potential, and developing concept designs for biogas plants, as well as helping them decided between providers' quotes. |
| WR | Experience in advanced data collection and analysis, employing co-creation methods. Expertise in providing policy recommendations | WR provided support as a service provider for:<br>1st round: Service provider of S1.<br>2nd round: Service provider of S1.<br>With WR's expertise they were able to offer market research services to the awardees that needed this type of support, providing a customized approach in terms of market context, drivers and barriers, and overall market trends in the region. |

| Partner | Organization Expertise | Partner contribution to service implementation |
|---|---|---|
| EDF | A club of dairy farmers from Europe and the world (about 500 members). Offers an international platform for interactive knowledge creation and best practice exchange. | EDF helped to populate the advisors list and support for S5. |
| EBA | Leading European non-governmental organisation promoting renewable gas in Europe. 150+ members from 20 countries (producers, consultants and researchers in the field of biogas). | EBA helped to populate the advisors list and support for S5. |

Thanks to the 2-rounds structure of the project, the consortium was able to gradually propose and implement improvements throughout the whole service provision period. This approach ensured that the service providers had all the tools to offer advice and support to the awardees, and also that the services proposed remained relevant for the awardees.

## 2.1. Lessons learnt from 1st and 2nd round

Taking as a basis the lessons learnt from the 1st round, the consortium was better prepared to provide alternatives to awardees and to better adapt to their needs. Below is the summary of challenges faced throughout the whole service provision period:

- **Awardees had more needs than initially expected:** During the 2nd round of the provision of the services, the general perception was still that most of the awardees required support in more than one area and were interested in more than one service, and sometimes they asked for input out of the project's scope. Since this challenge was identified in the last round, the consortium was quicker to act on it, following the same solutions applied in the 1st round:
    - The service provision was even more collaborative this time, most awardees had at least 2 providers and the ALFA hub involved in the provision, which facilitated the sharing of knowledge between consortium partners and allowed to make a better assessment to validate the assignment of the services. Partners found punctual ways of supporting and slightly modify the services according to the awardee's needs by gathering and adding valuable information provided by the consortium experts and also by external experts (e.g. national biogas associations, advisory board members, etc), this expanded the reach of the partners in terms of knowledge, making it a more holistic approach. Also, the support of the ALFA hubs was essential, in order to allow service providers to just focus on the services, leaving the organisation part to the respective hub.
    - Again, service providers noted down requests for gaps between the awardees' needs and the ALFA offerings for replication purposes, and also slightly modified the services to customize them for the specific needs of each awardee.

- **Some awardees were not aware of their specific needs or had no knowledge about biogas technologies:** For this round, the methodology was the same in the sense that the ALFA hub would have the first meeting to get more details about the project and present it to the consortium for the matching of the services. However, since now 2 service providers plus the ALFA hub were present in the 2nd meeting, it was easier to decide and validate the service action plan and to identify the needs in relation to a specific service. This posed less of a challenge this time around because the consortium was already aware on how to tackle this challenge.

- **Long response time during service provision from the awardee's side:** In this round, since everything was already defined and the consortium had experience from the previous round, all ALFA hubs and service providers were more straight forward when communicating the timeline for the service provision, which resulted in a better response time.

## 2.2. Final update on the ALFA business, finance and technical services

Regarding the feedback collection of the awardees, the overall satisfaction for the service provision was quite high, with an average of 83.3% of the answers rating very positively the experience for the 2nd round, with an accumulative of 84.8% for both rounds (for more detail on these numbers, please check ***D4.2 – Report on evaluation of the market uptake measures – Second Round***).

For the validation with the service providers after the service provision was concluded, they were asked to provide input on the challenges faced and to propose updates to the definition of the services. Overall, from a 1 (Not accurate) to 5 (Extremely accurate) scale, the service providers rated the definition of the services with a 4 (Very accurate).

One of the main aspects highlighted by services providers was that they reported taking additional steps in order to provide an extra value to the awardees, even exceeding the original service provision scope. This was done to go the extra mile, and because it was clear that the needs for support of the awardees varied on many levels and aspects. **This only confirmed that stakeholders in many countries are very interested in biogas, but due to lack of resources and/or knowledge, they feel limited in what they can do to adopt these technologies.**

According to the achievement indicator of the project, **at least 4 Business & Innovation Support Services and 5 Technical Support Services and Consultancy were to be designed and defined**. The consortium managed to **overachieve** this achievement indicator**, with the definition of 5 and 6, respectively.**

Summary of what has been updated in the following sub-sections:

**Business and access to finance**

- Complementary service to S1, S2 - Biomethane sales opportunities.
- Addition to S1 - Expanding market research with business model considerations: For some farmers, market research without the business approach does not seem as attractive, so merging these to services was a good approach.

**Technical development**

- Modification to S6 – In the context of S6, to ensure the relevancy and accuracy for each case, it's recommended that the questionnaire is customized for every awardee.
- Addition to S6, S9 – Biogas plant integration to RECs (optional).

- Addition to S11 – also add technologies for $CO_2$ capture and use (optional).
- New resource developed – Comprehensive maps that include all operating biogas units in Denmark, Greece, and Italy.

Minor updates to the services will be indicated in green to facilitate identifying the final updates.

### 2.2.1. Service 1: Market research

#### Service summary

The objective of the market analysis is to help the awardee understand the market and how it behaves (segments, trends, growth), the demand and offer for a certain product/service, to evaluate competition and define the value the new product/service is bringing to the market, among other things, in order to mitigate risks and guide decisions for the development of a business.

In the context of the ALFA project, the service included four stages to explore the different sides and features of the biogas and biomethane market, tailoring the research specifically for each awardee. With this, the awardee could have an overview of the available market opportunities in their country, identifying target customers and collaborators, as well as access information such as the description of the market environment, trends, size, growth and competitors, as well as ideas on how to move forward in the process.

#### Service features

Four stages were defined for the analysis:

1) Target market identification: market segmentation, identification of potential customer segments, market trends, both globally and regionally.
2) External environment analysis: Identification of PESTLE (political, economic, social, technological, legal and environmental) factors (some work has been done already in the desk research phase, so the consortium can take that as base and then customize and polish the information for each case).
3) Market environment analysis: qualitative assessment (state-of-the-art, competitive landscape, quantitative assessment (market value and size, market growth, potential addressable market).
4) Market attractiveness: how easy it is to enter the market, market consolidation.
5) Business modelling: Including a first draft to the business model canvas was identified as a helpful addition, to support the awardee to connect all the previous information and apply it in their day-to-day activities.
6) Optional: complementing service with biomethane sales opportunities. Entailed additional information on ways of selling biomethane, technical solution for biomethane sales affecting the final price (types, specifications, recommendations); Biomethane sales opportunities; Support mechanisms and co-financing models; Biomethane project co-financing models.

*This service can be limited due to the information available for each region in market reports, and these features are flexible, meaning that the service provider will use this as baseline but can deepen or focus the analysis wherever necessary depending on the specific case.

### *Resources required*

The resources used will be:

1) ALFA personnel: 1 or 2 dedicated team members to perform the service from each Hub.
2) Previous desk research performed by the Hubs for WP1 activities and also relevant information from interviews and success cases, market reports, and market trends.
3) Extra desk research for relevant reports and related market information available on the internet.
4) As an addition and if possible, collaboration from externals (collaborating biogas or farmer associations, technology providers, etc) is possible to offer a more targeted report. Of course, this will be done under the same conditions as the support services, which is at no cost for the awardee.

### *Service process*

The service process:

1) First meeting with the awardee to understand specific needs and to shape strategy.
2) Questionnaire/meeting to gather more information about their ambitions and how they conduct their business.
3) Service provider performs the analysis considering the 4 stages defined above.
4) Short report (2-3 pages recommended but can vary depending on the case) is produced with the information gathered and short analysis for the 4 stages, the section market attractiveness will be the conclusion with recommendations for the specific case (entering the market, introducing a new solution, identifying customer segments, etc). This report will be sent to the awardee and stored in the project Google Drive repository for future reference.

If more information is required that is not foreseen at this stage, the awardee could be contacted for extra meetings or asked to complete this additional information as the service provider sees fit.

### *Materials required for the delivery*

The materials required to deploy the service are:

1) Initial questionnaire guide to explore needs (service providers can add or remove questions to better fit each case).
2) Reporting template for delivery to the awardee.
3) If needed/relevant, excel spreadsheet template for market analysis of feedstock for biogas plant.

## *2.2.2. Service 2: Business modelling and planning*

### *Service summary*

The objective of business modelling and planning is to create a representation of its key components, processes and operations to achieve the goals set, and also to identify and mitigate potential challenges that can hinder the development and successful operation of the business.

In the ALFA context, business modelling and planning will take into consideration classic definitions and concepts such as value proposition, key partnerships, customer segments, among others, but it will also bring in the know-how specific for each of the ALFA countries to provide recommendations relevant to the country's business environment and market development levels.

### *Service features*

This service's features will consider:

1) Definition of value proposition, key resources and activities, key partnerships, customer segments (only short identification, for more detail, the market research service would deepen this analysis), as well as costs and revenue structures.
2) SWOT analysis.
3) Next steps and opportunities on how to move forward to enter the biogas/biomethane market or how to upgrade the technology, presenting how the awardee's current situation can fit business models more frequently used in each region.
4) Optional: complementing service with biomethane sales opportunities. Entailed additional information on ways of selling biomethane, technical solution for biomethane sales affecting the final price (types, specifications, recommendations); Biomethane sales opportunities; Support mechanisms and co-financing models; Biomethane project co-financing models.

### *Resources required*

The resources required will be:

1) ALFA personnel: 1 or 2 dedicated team members to perform the service from each Hub.
2) Previous desk research performed by the Hubs for WP1 activities and also relevant information from interviews and success cases.
3) Extra desk research for relevant information.

### *Service process*

1) First meeting with the awardee to understand specific needs and to shape strategy.
2) Questionnaire to gather more information about the current state of the business planning, identifying shortcomings and strong points (if they have already developed one component, the service provider can put more effort into the weakest components).
3) Service provider performs the analysis considering the features defined above.
4) Short report (2-3 pages maximum) is produced with the information gathered and short analysis highlighting the strong points and the components of the business plan that need more work, including the analysis done by ALFA and the recommended next steps. This report will be sent to the awardee and stored in the project Google Drive repository for future reference.

If more information is required that is not foreseen at this stage, the awardee could be contacted for extra meetings or asked to complete this additional information as the service provider sees fit.

### *Materials required for the delivery*

The materials required to deploy the service are:

1) Initial questionnaire guide to explore needs (service providers can add or remove questions to better fit each case).
2) Reporting template for delivery to the awardee.

### 2.2.3. Service 3: Access to finance support

#### Service summary

The objective of the access to finance support is to provide guidance for businesses, in this case farmers, agricultural cooperatives, biogas/biomethane plant owners or biogas technology providers, in the different stages of business planning, to access funding to kick-start or upgrade their products or services. Successful operation in the market requires continuous innovation of products and technologies, and investments for innovation tend to be very costly.

In the context of the ALFA support services, this service will provide a general overview of potential funding opportunities for the interested party, including key information such as the source of funding, conditions how to access funding, maximum grant/loan, requisites for application (helping beneficiaries navigate the application process), deadlines and next steps, including the list of recommended external consultancy companies that can continue the process of securing the funding.

#### Service features

This service will have the following two features:

1) Mapping of European financing opportunities: general list/overview relevant opportunities at European level (including the SEIFA project). The goal is to offer a general understanding of the European financing landscape, enabling quick access to the sources identified. This includes:
    a. Brief description of the funding source.
    b. Specific calls for proposals, grants and loans.
    c. Access links for further information and application procedures.
    d. Deadline information for application submissions.
    e. Specific requirements and eligibility criteria.

*This service can be limited due to the current number of published open calls at European level.

2) Mapping of regional financing opportunities: general overview/list of relevant opportunities at national and regional level:
    a. Brief description of grant/loan.
    b. Accessible web links for additional details and application guidelines.
    c. Clearly defined deadlines for application submission (if applicable).
    d. Specific requirements for eligibility.

*This service can be limited due to the current number of published open calls for e.g. state grants or bank offers for each region.

3) Recommendation of two to three regional consultancies that can further help them in securing the funding.

4) Step-by-step with directions on how to secure financing including information on national subsidies.

## *Resources required*

1) ALFA personnel: 1 or 2 dedicated team members to perform the service from each Hub.
2) Previous desk research performed by the Hubs for WP1 activities and relevant information from interviews and success cases.
3) Extra desk research for relevant information publications and reports regarding financing opportunities via the internet and open access sources.
4) Additionally, when feasible, collaboration with external partners (such as biogas or farmer associations etc.) can be incorporated to provide a more comprehensive report (i.e. list of potential networking opportunities etc.). This collaboration will be offered under the same terms as the support services, meaning it will be at no cost to the awardee.

## *Service process*

The service process will be:

1) Assessment and need analysis (including the identification of financial challenges they face):
    a. First meeting with the awardee to understand the specific needs:
        - Personal interview, either online or onsite meeting,
        - A questionnaire can be included during the meeting or sent afterwards, with more detailed information required (e.g. information about their ambitions, what they need financing for, what type of funding they are looking for, what kind of sources they consider etc.).
2) Service provider performs the analysis considering the features mentioned above.
3) Shaping and delivering a tailored-made overview of financial support services available for a specific awardee via:
    - Personal interview (optional), and/or
    - A written report (maximum may vary depending on opportunities) produced with the information gathered from the opportunities that better fit each specific case. This report will be sent to the awardee and stored internally for future reference.

If more information is required that is not foreseen at this stage, the awardee could be contacted for extra meetings or asked to complete this additional information as the service provider sees fit.

## *Materials required for the delivery*

The materials required to deploy the service are:

1) Initial questionnaire guide to explore needs (service providers can add or remove questions to fit each case).
2) Reporting template for delivery to the awardee (step-by-step guide with information gathered).

### 2.2.4. Service 4: Corporate and sustainable business finance

#### Service summary

The Corporate and Sustainable Finance service provided by ALFA aims at assisting livestock farmers and stakeholders in evaluating the investment in biogas solutions. This service encompasses two primary aspects:

1) Corporate Financial Evaluation: Analysing financial components, such as Capital Expenditure (CAPEX) and Operating Expenditure (OPEX) and assessing the effectiveness of the investment through indicators like payback period, Net Present Value (NPV), Internal Rate of Return (IRR), and Return on Investment (ROI).

2) Sustainability Evaluation: Utilising Environmental, Social, and Governance (ESG) metrics to light up the sustainability of the investment. ESG metrics help identify potential risks and growth opportunities, providing incentives for such investments and prospects for long-term sustainability.

Overall, this service will help stakeholders gain insights into their project's overall sustainability performance, including its environmental impact, social responsibility, and governance practices. This assessment is valuable for farmers and investors, regulators, and the public in making informed decisions and promoting responsible and sustainable business practices.

#### Service features

This service will have 5 stages for the analysis:

1) Definition of financial goals and the objectives of the project (farm/biogas plant).
2) Estimation of the total expenses and potential revenues of its activities, along with the calculations of the cash flows and the investment evaluation indicators to provide valuable feedback into the feasibility phase of such a project. Calculations include CAPEX, OPEX, based on a financial provision of five years, and utilizing the ALFA Decision Support Tool (DST), when appropriate.
3) In-depth financial analysis for the investment evaluation, including criteria such payback period, NPV, IRR, and ROI assessments. Thus, financial risks are identified (such risks are unexpected cost overruns, projections on exceeding operational expenses).
4) Evaluation of sustainability through ESG metrics including environmental factors (e.g., calculation of $CO_2$ emissions avoided and biowaste management), social factors (e.g., new jobs created), and governance factors (e.g., number of women on project management, reporting transparency).
5) Customised financial and sustainability reports, with recommendations for optimising biogas investments.

#### Resources required

The resources used will be:

1) ALFA personnel: 1 or 2 team members to perform the service from each Hub.
2) Data on the biogas project and financial information from the stakeholders.
3) Utilisation of the ALFA DST for initial calculations, if appropriate.

4) Access to financial and ESG modelling tools.

### *Service process*

The service process will be:

1) Initial Consultation: Meeting with the beneficiary (supported case) to gather project details and understand stakeholders' needs and objectives.
2) Questionnaire for data collection to acquire financial and sustainability data.
3) Service provider performs financial analysis, evaluate CAPEX, OPEX, NPV, IRR, ROI, and sustainability assessment using ESG aspects for sustainability evaluation (incl. carbon emission, waste management, labour practices, diversity inclusions, board of directors' composition, reporting transparency etc.).
4) Short report (2-3 pages maximum) will be produced with the information gathered and short analysis highlighting, with recommendations for the specific case (incentives for such investments and prospects for long term sustainability). This report will be sent to the beneficiary (supported case) and will be stored in partner's (project partner) file repository for purposes of reporting.

If more information is required that is not foreseen at this stage, the awardee could be contacted for extra meetings or asked to complete this additional information as the service provider sees fit.

### *Materials required for the delivery*

The materials required to deploy the service are:

1) Initial questionnaire guide to explore needs (service providers can add or remove questions to better fit each case).
2) Financial and sustainability assessment modelling templates and guidelines, slightly modified to facilitate reporting.
3) Customized financial and sustainability report templates, slightly modified to facilitate reporting.

## *2.2.5. Service 5: Farmer/expert to farmer advice*

### *Service summary*

The Farmer/Expert-to-farmer advice service facilitates mentorship and knowledge exchange from farmers and biogas experts (who already have been incorporated biogas solutions on their premises) among livestock farmers who are interested in such an activity (supported cases). This service is designed to support and empower farmers by connecting them with experienced peers who can provide guidance, advice, and mentorship in:

1) The initial phase of the design, e.g., by helping put together a team, finding additional providers of raw materials and facilitating stakeholder involvement, or even a storytelling from their point of view, regarding the success factor and, issues to be avoided.

2) The implementation and operation phase, for exchanging ideas, insights, best practices, techniques, skills development, advice, and guidance on problem solving.

### *Service features*

This service will have four stages for the analysis:

1) Identification of suitable farmers/biogas experienced persons, creating a pool of farmer/expert mentors, utilising the ALFA Engagement Platform.
2) Mentor – Mentee Matching: Pairing experienced farmers/biogas experts with beneficiaries (supported case) seeking guidance.
3) Consultation: Scheduled one-on-one session for knowledge transfer, either online or physical.
4) Knowledge Sharing: Best practices, techniques, and insights, with the goal to address specific challenges faced by farmers

### *Resources required*

The resources used will be a database of experienced farmers willing to mentor, available in the ALFA Engagement Platform, while a dedicated file with the role of the mentor is described in Terms of Reference.

### *Service process*

The service process will be:

1) Stakeholder Enrolment: Identify farmers seeking mentorship and those willing to mentor.
2) Matching: Pair mentors and mentees based on their needs and expertise.
3) Mentorship Sessions: Service manager schedules a meeting for knowledge exchange.
4) Short report (1-2 pages max) is produced with the information gathered and short analysis highlighting, with recommendations for the specific case This report will be sent to the beneficiary (supported case) and will be stored in partner's (project partner) file repository for purposes of reporting to European Commission.

### *Materials required for the delivery*

The materials required to deploy the service are:

1) Communication platform (online or offline) for mentor-mentee interactions.
2) Customized mentoring report templates.

## *2.2.6. Service 6: Concept design and development of biogas systems*

### *Service summary*

The purpose is to give the individual farmer an initial understanding of the size and types of facilities that may be possible to establish in connection with the case in question.

Based on information and calculations made with the ALFA support tool, an assessment will be made of which technology may be advisable in the specific case. An assessment will be provided on which design of facilities may be appropriate at the location in question, including a brief explanation on how biogas production can be adapted to the individual farm's consumption of electricity and heat and the handling of livestock manure and residual flows on the farm.

### *Service features*

This service will have three features:

1) When using the ALFA support tool, an initial calculation is made of the expected biogas production at the location in question.
2) By comparing the information provided about the individual farm with its location and the existing consumption on the farm, an initial assessment is given of which facilities can be appropriately established on the property.
3) Recommendation of 2-3 regional consultancies that can further help them in planning and design of a plant.
4) Optional: Integration of biogas plants with renewable energy communities.

### *Resources required*

Resources required:

1) ALFA personnel: 1-2 dedicated team members from the technical partner providing the service (service lead), and 1 member from the corresponding ALFA Hub for any support needed to communicate with the awardee, to gather the needed information and to translate the materials.
2) Use of the ALFA decision support tool.
3) Previous desk research performed by the Hubs for WP1 activities and also relevant information from interviews and success cases.
4) Extra desk research for relevant information of local conditions as electricity supply, water supply, connection options for gas, use of degassed biomass, storage facilities etc.

### *Service process*

The service process will be:

1) First meeting with awardee (meeting to be carried out by corresponding ALFA Hub with indications of technical service provider). During this meeting, it is recommended that the initial questionnaire is answered to avoid having to translate back and forth between English and the regional language, however it is not mandatory. The questionnaire can also be sent in an extra step, and its objective is to gather more information about regional conditions and conditions locally on the farm.
2) ALFA Hub sends questionnaire back to technical service provider, which will be the input from use of ALFA decision support tool. This questionnaire should be tailored to each case to ensure that the relevant information is gathered.
3) Technical service provider performs an evaluation considering the features mentioned above.
4) A short report (2 pages maximum) is produced by service provider with the information gathered from the ALFA support tool, questionnaire and initial meeting. This report will be sent to the awardee and stored in the project Google Drive repository for future reference.
5) ALFA Hub will translate and send the report to the beneficiary of the service.

### *Materials required for the delivery*

The materials required to deploy the service are:

1) Initial information and calculations from use of ALFA decision support tool.
2) Additional questionnaire guide to determine regional and local conditions on the farm.

3) Reporting template for delivery to the awardee.

### 2.2.7. Service 7: Evaluation of biogas potential based on preliminary calculations

#### *Service summary*

This service will give the farmer the opportunity to get a first estimate of how much biogas it is possible to produce from the biomass he has available. Biomass can be animal manure, residual products from the farm, or residual products that can be obtained locally.

The result can be used to assess whether it is possible to establish a biogas production or to clarify how much value the biomass can have as a commodity vis-à-vis to other stakeholders. Due to its characteristics, it can be used together with other services to serve as a base for other calculations and analysis, or to verify data.

#### *Service features*

This service will have four features:

1) When using the ALFA decision support tool and other proprietary tools developed by the technical partners, an initial calculation will be made of the expected biogas production based on updated information on livestock production and other available biomass.
2) Online studies of the biogas potential for special biomass types, if applicable.
3) The estimates are reviewed by one of the technical ALFA partners.
4) Recommendations on the best possible use of biogas will be given in the form of a short note/list.

#### *Resources required*

Resources required:

1) ALFA personnel: 1 dedicated team member from the technical partner providing the service (service lead), and 1 member from the corresponding ALFA Hub for any support needed to communicate with the awardee, to gather the needed information and to translate the materials.
2) Use of the ALFA decision support tool, and other previously existing calculation tools customized for ALFA to quantify and evaluate specific plant features.
3) Previous desk research performed by the Hubs for WP1 activities and also relevant information from interviews and success cases.
4) Extra desk research for relevant information.

#### *Service process*

The service process will be:

1) First meeting with awardee (meeting to be carried out by corresponding ALFA Hub with indications of technical service provider). During this meeting, it is recommended that the initial questionnaire is answered to avoid having to translate back and forth between English and the regional language, however it is not mandatory. The questionnaire can

also be sent as an extra step, and its objective is to gather more information about regional conditions and conditions locally on the farm.

2) ALFA Hub sends questionnaire back to technical service provider, which will be the input from use of the ALFA decision support tool and/or any additional calculation tools developed by partners and tailored for this purpose.
3) ALFA Hub to send/have 2nd questionnaire/interview to gather more information about specific biomass, if applicable (technical service provider will specify the information needed).
4) Technical service provider performs a verification of the estimate.
5) Technical service provider will produce a short note/list (1 page) with the information gathered from the ALFA support tool and questions. This note will be sent to the awardee and stored in the project Google Drive repository for future reference.
6) ALFA Hub will translate and send the report to the beneficiary of the service.

If more information is required that is not foreseen at this stage, the awardee will be contacted for extra meetings or asked to complete this additional information as the service provider sees fit.

#### *Materials required for the delivery*

The materials required to deploy the service are:

1) Initial information and calculations from use of ALFA support tool.
2) Additional questions on specific biomasses.
3) Note template for delivery to the awardee.

### *2.2.8. Service 8: Energy and environmental analyses assessing the energy and carbon footprint across the life cycle*

#### *Service summary*

The objective of Life Cycle Analysis is to inform farmers regarding the environmental impact of their agricultural processes in the context of biogas production, and to identify potential environmental hotspots and areas for improvement. The implementation of a “cradle-to-grave” approach aims at assessing the entire life cycle, including feedstock production, biogas generation and the use and disposal of potential byproducts.

In the framework of the ALFA project, farmers will: have an in-depth analysis of the carbon footprint arising from each process; identify resource-efficient practices within their biogas/biomethane production processes as well as the most environmentally friendly feedstock sources and transportation methods. In this way, farmers can make informed choices about feedstock selection, digester technology, energy utilization, and byproduct management by considering the environmental implications of different options.

#### *Service features*

A Life Cycle Assessment (LCA) service typically encompasses a range of features and components to provide a comprehensive analysis of the environmental impact of a process. In general, the features of the service will consist of the following aspects:

1) Scope definition: The service begins by defining the scope and boundaries of the LCA, including the system to be assessed, the life cycle stages to be included, and the environmental impact categories to be evaluated.
2) Inventory analysis: Data is collected from various sources, including primary data (e.g., from the farmers' operations), secondary data (e.g., databases), and literature reviews. Data may include energy consumption, material inputs, emissions, and waste generation.
3) Impact Assessment: LCA services assess the potential environmental impacts associated with the processes, such as greenhouse gas emissions, water consumption, land use, and toxicity. Different impact assessment methods (e.g., ReCiPe, Impact World+, CML) may be used to quantify and aggregate these impacts.
4) Interpretation of results: Interpretation of LCA results involves analysing and communicating the findings to the farmers. This includes identifying hotspots (life cycle stages with significant impacts), making recommendations for improvement, and discussing the implications of the assessment.
5) Optional: Integration of biogas plants with renewable energy communities.

### *Resources required*

1) ALFA personnel: 2-3 dedicated team members from the technical partner providing the service (service lead), and 1 member from the corresponding ALFA Hub for any support needed to communicate with the awardee, to gather the needed information and to translate the materials.
2) A licensed LCA software is required to perform the life cycle assessment as well as the prerequisite licenses for its operation. CERTH has access to SimaPro, which is one of the most widely employed LCA software.
3) Extra desk research for relevant publications and reports regarding the sustainability assessment of biogas/biomethane units.

## *Service process*

1) First meeting with the awardee to explain the process and generate a basic overview of the farm and its operations will be done by the respective ALFA Hub in regional language, if possible a questionnaire to gather more information regarding the farm that will be used as input in the LCA analysis, such as energy/water consumption, type and mass of feedstock used, transport distances, etc., will be fulfilled during the meeting, but it can also be completed as an extra step. ALFA Hub is responsible of sending the completed questionnaire to the technical service provider.
2) The technical service provider performs the analysis considering the features mentioned above.
3) Technical service providers produce a short report (2 pages maximum) summarizing the findings of the analysis, providing a general overview regarding the environmental impact of each process and recommendations for improvement.
4) ALFA Hub will translate the report to be sent to the beneficiary of the service.

If more information is required that is not foreseen at this stage, the awardee will be contacted for extra meetings or asked to complete this additional information as the service provider sees fit.

### *Materials required for the delivery*

1) A questionnaire to gather more information regarding the farm that will be used as input in the LCA analysis.
2) Reporting template for delivery to the awardee.

## *2.2.9. Service 9: Consultancy on the implementation and monitoring of biogas solutions*

### *Service summary*

Selecting the corresponding technology and components according to the sizing of the plant is a critical stage of the biogas/biomethane plant development. The identification and collaboration with suitable constructors can pave the way for the establishment of the optimal plant in compliance with farmers' needs and possibilities.

In the context of ALFA, the offered service aims to provide guidance to farmers, whether they have prior experience or are newcomers to biogas/biomethane plant operations. This includes assistance in technology selection, identification of suitable components, and recommendation of trusted constructors.

### *Service features*

1) Technology Assessment: Evaluating various biogas and biomethane production technologies to determine the most suitable options based on factors set by the farmer.
2) Component Selection: Recommending the necessary components and equipment for biogas/biomethane production.
3) Constructor Collaboration: Facilitating connections with trusted constructors or contractors who can build and install the biogas plant components according to recommended specification.
4) Recommendation of conditions for optimizing biogas solutions.
5) If relevant, provide instructions for the farmers on the best combination of types of feedstocks in order to get closer to their goals.

### *Resources required*

1) ALFA personnel: 2-3 dedicated team members from the technical partner providing the service (service lead), and one member from the corresponding ALFA Hub for any support needed to communicate with the awardee, to gather the needed information and to translate the materials.
2) Extra desk research for relevant information.

### *Service process*

1) First meeting with the awardee to explain the process and generate a basic overview of the plant, its operations and the beneficiary' needs, which will be carried out by the ALFA Hub in parallel with completing the corresponding questionnaire to gather the necessary technical parameters of the farm, which can be done during the interview or in a subsequent step.

2) The technical service provider will receive the questionnaire and carry out in-depth research to meticulously select the most suitable technology and components that align precisely with the needs and preferences of the awardee.
3) The technical service provider will make recommendations according to the beneficiary, either by delivering a small report or through a meeting (ALFA Hub will translate the report/or carry out this interview, when necessary, with indications of the service provider).

### *Materials required for the delivery*

1) A questionnaire to gather more information regarding the technical specifications of the farm.
2) Reporting template for delivery to the awardee if needed.

## *2.2.10. Service 10: Technical support for farmers in the evaluation and comparison of plant suppliers' quotes*

### *Service summary*

The aim is to steer farmers in the choice of optimal technical solution for biogas and biomethane production in their farm. Thus, the service is devoted to farmers who have already undertaken the whole process and have already asked and obtained some quotes from technology providers or designers. To this end, it's necessary to have at least two quotes and technical specifications about the planting solutions, and it's essential to know the customers' needs.

Based on the information gathered, an assessment will be provided of the strengths and weaknesses of each quote. A short report whose purpose is to guide the farmer toward an informed and aware choice will be produced and delivered. This report will be tailor-made considering all aspects highlighted in the preliminary phase. It may also contain suggestions and tips for optimized management of the plant, manure and residual flows.

### *Service features*

This service will have three features:

1) Identification of all the sections of the plant and components quoted.
2) Comparison between quotes with identification of the main differences in the processes and technologies proposed. In order to assess correctly, it is possible that service 7 is also applied in order to have access to quick calculations.
3) Description of strengths and weaknesses. Depending on the quotes features this description may consider: several equipment/components, completeness of the quote, appropriateness with farm characteristics, correspondence with farmer needs, costs, O&M effort etc.

### *Resources required*

Resources required:

1) ALFA personnel: 1-2 dedicated team members from the technical partner providing the service (service lead), and 1 member from the corresponding ALFA Hub for any support

needed to communicate with the awardee, to gather the needed information and to translate the materials.
2) Previous desk research performed by the Hubs for WP1 activities and relevant information from interviews and success cases.
3) Extra desk research specific for each case about relevant information of technological alternatives, equipment features and local conditions as electricity supply, water supply, connection options for gas.

### *Service process*

The service process will be:

1) First meeting with awardee (meeting to be carried out by corresponding ALFA Hub with indications of technical service provider). During this meeting, it is recommended that the customer brings with him: the quotes, and all the technical information they have on the plant/equipment quoted.

2) The ALFA Hub sends the translation in English of the quotes and of the technical documents back to technical service provider, which will be the input for the service

3) Technical service provider performs an evaluation considering the features mentioned above.

4) A short report (2 pages max) showing the strengths and weaknesses of each quote is produced by the service provider based on the information gathered. This report will be sent to the awardee and stored in the project Google Drive repository for future reference.

5) ALFA Hub will translate and send the report to the beneficiary of the service.

### *Materials required for the delivery*

The materials required to deploy the service are:

1) At list two quotes referred to installation of a biogas or biomethane plant in the customer's farm.
2) The quotes have to include basic technical features of the plant.
3) Additional questionnaire to probe customer needs/preferences.
4) Reporting template for delivery to the awardee.

## *2.2.11. Service 11: Technology catalogue – features of cleaning and upgrading equipment*

### *Service summary*

The objective of this service is to provide information on the different existing technologies for purifying and upgrading the gas produced by anaerobic digesters. For both processes, the description of the various technologies is complemented by a table to facilitate comparison and selection based on the general characteristics of the rest of the plant and the type of gas end use. The concept is that with this information makes it easier for users to choose the type of equipment best suited to their needs.

### *Service features*

The features vary slightly depending on the awardee receiving the service:

1) For those who have an anaerobic digestion plant and want to convert it to biomethane production: they will obtain information on processes compatible with the already existing plant and needs.
2) For those who already have an anaerobic digestion plant and want to improve purification phase: they will obtain information directed towards maintenance and operations.
3) For those building a new plant from scratch: assistance and guidance in identifying the most suitable technological solutions (and list of providers) for the size, location, and final use of the gas.
4) Optional: Addition of technologies for $CO_2$ capture and utilization.

### *Resources required*

1) ALFA personnel: 1-2 dedicated team members from the technical partner providing the service (service lead), and one member from the corresponding ALFA Hub for any support needed to communicate with the awardee, to gather the needed information and to translate the materials.
2) Previous desk research performed by the Hubs as part of WP1 activities, and relevant information from interviews and successful cases.
3) Extra desk research information on specific technologies and their diffusion in the plant area.
4) In case of existing plants, additional information from the awardee to evaluate the compatibility of equipment.

### *Service process*

1) First meeting with awardee (meeting to be carried out by corresponding ALFA Hub with indications of technical service provider). The aim of the meeting is to have a better understanding of the characteristics of the produced gas and the intended end use. It is recommended that the questionnaire is answered to avoid back and forth and translating efforts.
2) Information on the technologies is adapted, if necessary, to go in line with the characteristics and needs of each case.
3) Report with the relevant information is drafted and sent to the beneficiary of the service. Translation to the national language if necessary.
4) If requested by the service beneficiary, a final meeting can be organized to discuss the results and information contained in the report.

### *Materials required for the delivery*

1) Initial needs questionnaire to gather input.
2) Reporting template for the service beneficiary.

# 3. Capacity Building Programme

The main objective of Task 2.4 was to serve as a starting point to support Task 3.4, which focused on the proper deployment of market uptake measures, including capacity building activities. To this end, a specific plan was developed by SIE for the partners to follow in the implementation of these activities, with the aim to broaden stakeholders' knowledge of biogas through targeted training programmes.

As stated in previous versions of this report, the capacity building activities were divided into two types:

- **International webinars**, which were short sessions (one to two hours long), delivered in English and targeting a wider, international audience.
- **Regional seminars**, which were full-day programmes, one per hub (six in total), aimed at stakeholders in each regional area and delivered in the local language.

Most of the organisational work took place between months M13 and M15 and was subsequently updated in line with project developments. Topics were selected per partner, and planning drafts and best practice documents were prepared in collaboration with the partners and discussed in several meetings. The actions carried out included:

- Preparation of an Excel document where hub managers input their ideas and approaches for their seminars: dates, associated events, location, etc.
- Restructuring the webinar planning according to updated scheduling needs from the partners.
- Creation of a feedback form for the seminars to ease reporting of the events, to be completed by hub managers.
- Development of basic communication materials for partners to use during the events.

According to the achievement indicator of the project, at least 6 **international webinars** and 6 **regional seminars** needed to take place, and the consortium managed to achieve the deployment of **7 and 6, respectively**.

Also, **8 capacity building programmes** needed to be designed and delivered during the project's lifetime, 3 more were added to this final list in the 2nd period, and were subsequently deployed in the webinars, with a **total of 9** (see table 2 for more detail on the topics).

## 3.1. Lessons learnt from 1st and 2nd round

The capacity building activities implemented throughout the lifetime of the ALFA project generated a wide range of lessons learnt that informed the continuous improvement of outreach, content delivery, and stakeholder engagement strategies.

- **Content relevance:** One of the key insights was the importance of addressing locally grounded topics while maintaining relevance to wider EU-level trends. Tailoring content to specific regional challenges, such as the biogas management in Denmark, policy frameworks in Slovakia, or market opportunities in Spain, proved to significantly increase audience interest. This approach ensured both contextual relevance and cross-regional learning.

- **Strategic outreach:** It became clear early on that promotion through trusted local networks, including farmer associations (e.g. Boerenbond), agricultural media (e.g. Landbouwleven), and event organisers, led to significantly higher participation. These channels were reinforced over time through multi-platform communication efforts, such as social media and regional stakeholder mailing lists.
- **Event integration:** Celebrating seminars within larger events with a built-in audience (such as SEPOR in Spain or MO.ME.MA in Italy) proved to be an effective tactic for reaching otherwise hard-to-engage stakeholders. This strategy was adopted and replicated across several hubs, enhancing visibility and spontaneous participation.
- **Scheduling and timing:** Events scheduled outside of peak farming seasons, and conducted in the local language, were consistently better attended and received.
- **Content, language and accessibility**: The content was further tailored to reflect participants' varying levels of technical expertise, combining high-level overviews with real-life case studies and practical demonstrations. Showcasing initiatives such as BIOGASTUR or on-farm systems in Belgium helped ground the sessions in operational realities and increased their perceived value.
- **Engagement and interactivity for participant satisfaction:** Formats that incorporated panel debates, Q&A sessions with technology providers, and co-creation workshops promoted engagement, facilitated peer learning, and enabled valuable exchange of experience. Feedback gathered through post-event surveys confirmed the relevance of these participatory approaches and provided concrete suggestions for future improvements, such as dedicating more time to discussion or including live demonstrations.

In summary, the lessons learnt over the course of the ALFA project highlight the value of locally tailored content, strategic partnerships for outreach, context-sensitive planning, and interactive formats. The project's adaptive approach to addressing both initial and emerging challenges has contributed to more effective, inclusive, and impactful capacity building efforts across all hubs.

## 3.2. Final update on webinar programme

As foreseen in the initial capacity building plan, a series of international webinars was successfully implemented throughout the lifetime of the ALFA project. These webinars aimed to promote knowledge exchange and increase awareness of biogas opportunities within the livestock sector at the European level. Each session was held online and conducted in English, targeting a wide range of stakeholders including farmers, industry professionals, researchers, and policymakers. The webinars were designed as short, focused sessions (typically lasting between one and two and a half hours), each addressing a specific topic related to biogas and the circular economy. The programme was coordinated by SIE, which was responsible for the structural and logistical aspects of the webinars — including agenda development, speaker onboarding, moderation, and technical hosting. White Research led the promotion efforts through the project's social media channels, ensuring wide outreach and stakeholder engagement. Content for each session was provided by the relevant partners based on their areas of expertise.

In total, seven international webinars were scheduled and organised across the duration of the project, covering a broad range of themes from technological innovation and policy challenges to circular economy tools and successful biogas case studies. All webinars incorporated interactive elements, such as live Q&A sessions and participant surveys, to enhance engagement and foster dialogue. The programme remained aligned with the original plan, with only minor scheduling

adjustments made to accommodate project dynamics and partner availability. The following table shows the topics that were finally selected following the expertise criteria of each partner:

**Table 2: Capacity Building topics developed in the ALFA webinars**

| | Topic added on | Topic | Deployment Criteria | Partner | Status/Date |
|---|---|---|---|---|---|
| 1 | 1st round | Challenges and needs for the uptake of biogas in livestock farming | Served as an introduction to the topic of biogas itself and to present inputs gathered during the first half of the project. | WR | DEPLOYED (May 2024) |
| 2 | 1st round | Biogas in the framework of circular economy systems | Helped attendees understand what the circular economy and biogas are, with real examples building on previous sessions. | APRE / SIE | DEPLOYED (March 2025) |
| 3 | 1st round | Waste management/treatment and biogas plants | A more specific topic that served as a core argument for biogas uptake. | PED | DEPLOYED (November 2024) |
| 4 | 1st round | The use of straw and grass for biogas production | Showed that these biomasses pose specific challenges in biogas plants but offer high gas potential from low-cost materials. | FBCD | DEPLOYED (June 2025) |
| 5 | 1st round | Overview of biogas in Europe | Provided a broad European perspective to contextualise national experiences and regulatory landscapes. | EBA | DEPLOYED (May 2024) |
| 6 | 1st round | ALFA support services, Decision Support Tool and practical case with Greek awardee | Provided a general idea of the project. It is also useful for other tasks that involve applying those services throughout the project. | QPLAN | DEPLOYED (May 2025) |
| 7 | 2nd round | Exploring the framework conditions of ALFA regions | Analysed the specific regional factors affecting biogas deployment, contributing to understanding local opportunities and constraints. | SIE | DEPLOYED (June 2025) |
| 8 | 2nd round | Challenges and drivers for the uptake of biogas from dairy farming in EDF farms | Focused on the specific challenges faced by farmers, with practical insights from EDF member case studies. | EDF | DEPLOYED (July 2025) |
| 9 | 2nd round | Success cases from Italy and Spain | Showcased successful biogas adoption cases from Italy and Spain, illustrating replicable models and practical benefits. | APRE / SIE | DEPLOYED (March 2025) |

More information on the content, agenda, number of attendees, and links to the recordings of each webinar can be found in ***D3.4 Report on deployment of Alfa Support Measures - Second Round***.

## 3.3. Final update on seminar programme

As part of the ALFA project's capacity building strategy, a series of regional seminars were organised across the participating hubs to raise awareness, disseminate knowledge, and foster dialogue around the adoption of biogas solutions in livestock farming. While the content of each seminar was tailored to local needs, the coordination and deployment of these events followed a common organisational framework to ensure consistency, impact, and efficiency. This included structured planning in collaboration with local partners, integration within larger thematic events where relevant, and the use of hybrid formats to increase accessibility and stakeholder participation.

**Tabla 3: Seminars Programme**

| Hub | Seminar | Place & Dates of Deployment | Comments |
|---|---|---|---|
| **Italy** | *"Prospettive avveniristiche per lo sviluppo del biogas in Italia ed in Europa"* (MO.ME.MA Fair) | Tarquinia (Lazio, Italy) – **3rd May 2024** | Organised within the long-running MO.ME.MA Machinery and Agriculture Fair, allowing access to a large number of farmers and livestock professionals. Topics included EU and Italian biogas development prospects. The event generated high interest, was televised locally, and was recorded to support future knowledge transfer and service deployment. |
| **Slovakia** | *Turn Waste into Energy: Opportunities and Challenges of Biogas Plants* (European Biomethane Week) | LOFT Hotel, Bratislava – **15th October 2024** | Organised by PEDAL Consulting and Slovak Biogas Association. Full-day seminar with presentations on biodegradable waste legislation and biogas use, followed by open discussions and networking. High satisfaction from participants and positive feedback, with emphasis on policy frameworks and practical application of biogas technologies. |
| **Spain** | *Leveraging the potential of biogas in the livestock sector* (SEPOR Fair) | Lorca (Murcia, Spain) – **30th October 2024** | Integrated within the SEPOR livestock fair. Topics included biogas opportunities, policy support, and real-world case studies such as BIOGASTUR. Included icebreaker, networking activities, and a co-creation workshop. Evaluation highlighted strong interest and engagement; seminar recording was made available on the ALFA YouTube channel. |
| **Denmark** | *The use of degassed biomass* | Aarhus, Denmark – | Organised by FBCD with contributions from SEGES Innovation, Aarhus University, and biogas industry experts. Focused on nutrient recovery, emissions reduction, and digestate |

| | | | |
|---|---|---|---|
| | | **6th November 2024** | optimisation. Full-day event with high-level presentations and a panel debate. Evaluation showed the seminar facilitated valuable knowledge exchange and multi-stakeholder collaboration. |
| **Belgium** | *Biogas in de veehouderij: voordelen en uitdagingen* | Merchtem (Flanders, Belgium) – **18th February 2025** | Full-day seminar organised by White Research and held at a livestock farm. Included expert presentations (Inagro, EBA, Biolectric), a farm biogas plant visit, and policy discussion. Promotion carried out via newsletters, agricultural media, and partner campaigns. Participants expressed high satisfaction and shared policy-related insights through feedback forms. |
| **Greece** | *Unlocking the Potential of Biogas in Livestock Farming* (as part of the 10th HAEE Energy Transition Symposium) | Maroussi Plaza Centre, Athens – **5th June 2025** | Organised by Q-PLAN as part of the prestigious HAEE Energy Transition Symposium. The seminar was held in a hybrid format and focused on the role of biogas in livestock farming. Presentations covered ALFA's digital tools, biomethane market trends, technical services, and successful investment cases. A roundtable discussion explored biogas' contribution to sustainability and circular economy. Participants included farmers, investors, researchers, and policymakers. |

More information about the deployment of the seminars can be found in ***D3.4 - Report on deployment of Alfa Support Measures - Second Round***.

# 4. Awareness Raising Campaigns

The **achievement indicator** related to the conclusion of the **12 ARCs (2 per ALFA hub)** was achieved by the consortium, with **a total of 12 designed and implemented, 6 per round.**

## 4.1. Lessons learnt from the 1st and 2nd round

The lessons learnt identified are listed below:

- **Data collection challenges:** A challenge that appeared on the 1st round for baseline data collection, which was mitigated by some partners improving survey reach by using relevant communication channels, especially through social media, helping to engage broader and more varied demographic groups and boosting participation and credibility. Now for the 2nd round, the challenge relied on midpoint and final data collection. As with the baseline data, collecting consistent data during the midpoint and final surveys proved difficult due to the campaign's wide and diverse target audience. Differences in awareness levels, cultural perceptions, and regional outreach made it hard to gather a uniform sample across the three rounds, complicating the comparison of evolving perceptions and behaviours. A comparative analysis approach of the three survey rounds confirmed a measurable increase in social acceptance, especially regarding socio-economic benefits and inclusive & sustainable agriculture development.
- **Regional adaptation as a key strength:** Each hub again applied its own strategic approach, and it was again confirmed that harmonisation does not require identical implementation, but rather shared objectives with flexible, locally adapted actions. This insight directly informed the update of the ARC strategy, ensuring that all hubs could contribute effectively within their specific contexts.
- **Reinforcing the dual-faceted online-offline approach:** In response to initial challenges, APRE reemphasised the importance of combining online and offline outreach, as originally outlined in the ARC strategy. This refinement of the initial plan proved essential in maximising the campaign’s visibility and reach.
- **Engagement through livestock fairs and peer examples**: A highly effective strategy identified in the 2nd round was organising events that involved livestock farmers who already operated biogas plants (including small to medium-sized ones), or those actively pursuing one. This peer-to-peer approach proved especially successful in attracting the interest of other farmers who wanted to “see and touch” real-world experiences. On-site events such as mutual learning workshops helped to establish connections and build trust with farmers and between them and other stakeholders.
- **Promotion of webinars through partner networks:** Promoting online events through well-established partner channels helped increase visibility, although challenges remained in reaching certain farming audiences.
- **Engagement of institutional actors and policy influencers**: Hubs have recognised that a key factor in increasing the impact and legitimacy of awareness campaigns in the future is to involve government bodies and regulatory actors more in reposting campaign content on social media or in newsletters.

- **Leveraging networks and associations for dissemination:** Hubs identified this as the most efficient strategy for expanding outreach. Articles and announcements were shared via sectoral platforms (e.g., ruminant farming, renewable energy, women in science). In this round, certain hubs placed increased focus on gender equality, collaborating with platforms dedicated to gender issues and sharing success stories of women in renewable energy, biogas, and research. This approach generated notable interest and engagement. Collaborations with initiatives like the EU Bioeconomy Network further enhanced visibility and stakeholder connections.
- **Participation in diverse external events:** During the 2nd round, several new contacts and collaborations originated from presenting the ALFA project in non-biogas-specific settings and events, and these proved valuable for stakeholder engagement and project promotion. Project partners participated in various types of events, and the recommendation for further stakeholder outreach and growth in awareness and social acceptance is to continue and increase this commitment by participating in bioeconomy round tables, communities of practice and renewable energy forums.
- **Use of direct communication channels:** In addition to promoting open calls, tools such as Telegram and WhatsApp were used during the 2nd round to improve the response rate for feedback (e.g., evaluation forms, survey completion), when possible. In fact, another important lesson, particularly for livestock farmers, was the difficulty in obtaining feedback. Many stakeholders did not respond to emails or formal requests. Hubs often had to send multiple reminders and resort to direct messages (e.g. WhatsApp) to receive responses. As highlighted by what was already learned in the first round, regular follow-up and the use of familiar communication methods proved essential to maintaining engagement.
- **Language accessibility**: During this 2nd round, a commonly reported barrier was language. Many livestock farmers do not speak English, and European projects often rely on English as the official language for events, activities and materials. Hubs addressed this challenge by offering instant translation during live events, providing presentation slides in local languages, and uploading articles in their original language to the ALFA Biogas forum. Nevertheless, the demand for more locally delivered activities in the local language remains a priority and a challenge to balance in European project settings.
- **Involving key players in connection with research and industry**: Another important takeaway is the value of engaging stakeholders who can act as intermediaries between the research world and business sectors—particularly those who are able to translate complex or technical concepts into business-oriented language. Greater involvement of these figures can help bridge the gap between scientific information and farmers' practical decision-making, as their presence can help make messages more accessible and actionable, especially when communicating the economic feasibility and operational aspects of biogas-based solutions.
- **Collaboration with associations connected to primary producers**: Partnering with associations that have direct links with primary producers—such as cooperatives, farmers' unions, or sectoral consortia—proved to be a crucial enabler for engaging primary producers across the entire biogas value chain, and all hubs agreed that this collaboration is essential to achieving the desired impact, and that it should therefore be pursued further. In fact, these associations not only are able to facilitate access to hard-to-reach farming communities but also play a role in fostering broader collaboration between producers, technology providers, researchers, and policy actors, helping create a more integrated approach, and encouraging stakeholders to perceive themselves as active contributors to the circular bioeconomy rather

than isolated players. Strengthening these partnerships remains therefore essential for improving uptake and long-term sustainability.

## 4.2. Final update on the awareness raising campaigns

The finalisation of the second ARC round, along with the lessons learned from both campaign iterations, provides a solid foundation for assessing the overall effectiveness of the awareness raising strategy implemented in the ALFA project. With the improvement points and experiences from the first round in mind, APRE led a comprehensive update of the original ARC strategy, incorporating lessons learnt and adaptive measures to better respond to the diverse audiences involved. The second round saw an expansion in both format and target groups, including the development of short videos and accessible web articles designed to combine technical content with inclusive social perspectives—particularly relating to gender equality and inclusion in the livestock farming, biogas and renewable energy sectors.

The comparative analysis of the three survey rounds confirms that the awareness campaigns successfully contributed to a measurable increase in social acceptance of biogas facilities, particularly in relation to socio-economic benefits and the development of sustainable, inclusive agriculture. Although some challenges remained such as data consistency, language accessibility, and institutional engagement, all hubs were able to adapt their actions effectively to local conditions, demonstrating the value of regional customisation within a shared strategic framework (more information about all the actions related to the awareness raising campaigns can be found in ***D3.4 Report on deployment of Alfa Support Measures - Second Round***).

Strategic synergies with national and sectoral networks (including biogas associations, livestock farmers' associations, government bodies, and technology providers) proved essential to increasing the campaigns' outreach and credibility. These collaborations enabled the dissemination of campaign content through trusted platforms, such as professional web magazines and stakeholder mailing lists. Moreover, partnerships with organisations operating in the broader field of renewable energy and gender equality enriched the campaign's perspective and extended its relevance to new audiences.

Another key takeaway was the importance of peer engagement and direct contact: involving farmers already familiar with or interested in biogas installations significantly enhanced participation, especially during on-site events such as Mutual Learning Workshops. Similarly, the use of direct communication channels (e.g., WhatsApp) helped improve feedback collection and foster continued dialogue with farmers, particularly in cases where written responses were hard to obtain.

As the ALFA project nears its conclusion, the awareness raising campaigns stand out as a successful component of its outreach and impact strategy. Although no further ARC rounds are foreseen within the project's lifecycle, the knowledge, tools, and methods developed throughout these activities remain valuable assets for all partners. They will inform future initiatives in the field of biogas advocacy, sustainable livestock farming and agriculture, and renewable energy, both within and beyond the ALFA context.

# 5. Conclusions and Recommendations for Replication

After the conclusion of the 2nd open call and the final update of the market uptake measures, a few conclusions can be made from the work done in WP2:

- **There's a huge need for these types of services, especially for technical and consultancy-type services for biogas implementation:** The main need for all countries was to acquire expert knowledge on design, implementation and maintenance of biogas/biomethane solutions. Most of the awardees lack technical knowledge on how to implement these solutions since their core business is farming and not renewable energy production, so this creates a knowledge gap that was temporarily fulfilled with the ALFA services but will unfortunately still exist after the project is over.
- **The needs are not only related to the technical or business side, both are tightly connected:** The financial viability of a solution cannot be isolated from the technical solution, so both types of services were always provided, directly and indirectly. It's not possible to create a financial projection without understanding the type of biogas production and benefits that will be obtained, and the contrary is also true, it's difficult to know the implications of installing a biogas plant without understanding the finances behind it, this is why this type of business and technical support need to go hand in hand.
- **The lack of financial incentives and over-complicated regulations are hindering the implementation of biogas solutions:** Over and over through ALFA's lifetime this statement has been validated, even in countries like Denmark and Italy who are ahead in the game when compared to the other ALFA regions, there is still a lot of work to do regarding regulations, policies and financial incentives available to boost biogas and biomethane adoption. For countries like Spain, Belgium, Greece and Slovakia, there is still a lot of work to be done in terms of process regulation and simplification, and valorisation of the energy and digestate produced.
- **Awareness raising will continue to be an important aspect in the adoption of these technologies:** There are still a lot of misconceptions around biogas and biomethane, so the work is not done yet. Awareness raising, especially at citizen and farmer levels, is key in order to have more people join the change towards sustainable energy and better understand the benefits they can get from it. Of course, this must go together with the implementation of better incentives, regulations and policies.

Now, regarding recommendations for replication, an initial list can be produced from WP2 (serving as a starting point for WP4, where the final list of recommendations for policy and replication will be produced):

- **The path is clear, policies and regulations need to be improved:** Even when each country's approach can vary, common priorities and goals are clear: unification and simplification of authorization processes surrounding plant implementation and availability of financial incentives (tax relief, feed-in tariffs, guarantees of origin, and other types of incentives) are key to continuing to pave the way towards the implementation of these solutions.

- **Awareness raising campaigns showed it can be done:** Via the campaigns designed in ALFA, the project showed that raising awareness can be achieved, however ALFA is only one of the many initiatives that need to take place to achieve a big change. Among the internal networks, the awareness raising showed that interacting with stakeholders on-site through in person events and workshops, and off-site through videos and social media posts, magazines, press releases, and other types of activities can effectively boost the interest in biogas and biomethane.
- **The gap in knowledge can be tackled:** During the project, all activities have directly and indirectly focused on bridging the knowledge gaps between farmers and the uptake of biogas solutions, the one with the most potential for replication are:
    - **The co-creation workshops:** The first touchpoint of ALFA with the project stakeholders, where feedback was gathered for the definition of the services and on the following project activities, and where the first opportunities and challenges were identified, a crucial step for the rest of the project to build on and to better understand each region's needs. These can be replicated in other countries in order to obtain the starting point on opportunities vs. barriers from different stakeholder perspectives.
    - **The development of the ALFA tools:** Tools available for free in the ALFA Engagement Platform that cover a range of needs, from providing an easy calculation of the biogas potential, to a document library with relevant information, a biogas forum to share insights and questions, and a successful case map to get inspiration from. These will remain available after the end of the project, so others can build on the work done in ALFA and use them freely.
    - **The availability of free support services (business, financial and technical):** Having services like the ones deployed in ALFA has shown a huge improvement for awardees, as they have had the opportunity to discuss with experts and get a clear plan on the next steps. Having more initiatives like ALFA would have a positive impact on uptake of these technologies, allowing smaller players (like small-medium farmers) to also be able to access the knowledge and implement these solutions at a smaller scale. With the services designed and deployed in ALFA, the consortium has paved the way for others to build upon the knowledge and experience acquired (described through a series of open deliverables, available on the project's website) and use it as a guide for implementation in other European countries, and even supporting and adding to ALFA's policy recommendations to keep encouraging the momentum towards the implementation of biogas.
    - **The capacity building webinars:** Going from basic to more advanced topics, each webinar aimed to provide the necessary basis information to understand how to make informed decisions when installing a biogas solution. These sessions are easy to replicate, as doing online events makes it easier for the stakeholders to attend, although it's good to keep in mind that farmers are harder to reach using this format. All webinar recordings will remain available in the project's YouTube channel, so they can continue to be used for capacity building even after the end of ALFA.
    - **The capacity building seminars:** More tailored to the specific region and its challenges, these sessions allowed retrofitting between different stakeholders in the value chain and to better understand and validate each of the region's biggest challenges. By providing each other's perspectives on critical issues, solutions and agreements could become a reality, and very valuable networking could also take

place. When thinking about replication, it is true that these events entail more effort in terms of organization when compared to the webinars (given their face-to-face or hybrid format), but this effort is compensated by understanding that they encourage a different and necessary approach to the discussions, allowing all stakeholders, especially farmers, to interact among themselves and to have fruitful debates in their national context and to create valuable networking opportunities.

- **The mutual learning workshops:** Similar to the seminars, but with an international approach. These sessions were focused on regional challenges but would include actors from other countries in Europe that could share their experiences and their own challenges in solving a specific issue or proposing alternatives they have used in practice. Similar to the seminars, these sessions take a considerable effort to organise, but the value they provide compensates this effort, as these events allowed participants to take what was discussed during other regional-focused sessions now to a more international audience, obtaining unique points of view from successful cases and biomethane experts.
- **The awareness raising campaigns:** Which have already proven to receive positive engagement (making it clear that the interest in biogas is there) but also have proven there is still work to be done in order to substitute the misconceptions around biogas and biomethane with the benefits these bring. These actions can be easily replicated around Europe, first by translating already existing content developed by the ALFA partners to other languages, and second by taking inspiration from the material formats used to create new materials and formats.

The findings and outcomes of the ALFA project provide a robust foundation for future replication and upscaling across Europe and beyond. The modular structure of its support services, adaptability to local contexts, and emphasis on stakeholder co-creation make ALFA a replicable and scalable model. Future initiatives, whether at regional, national, or EU level, can take from ALFA's methodologies, including its multistakeholder engagement approach, capacity building formats, and peer-to-peer mentoring practices. This will be materialized in the form of a replication guide and policy recommendations by the end of the project, as part of the WP4 activities.

In order to maximize impact, integrating ALFA's tools into ongoing advisory programmes, agricultural cooperatives, or bioeconomy policy instruments will ensure the continuity of support for farmers navigating the energy transition. Institutional actors, NGOs, and private consultancies are well-positioned to carry forward these models, in this way sustaining the momentum created and bridging the knowledge and implementation gaps in the biogas sector.

# The project

ALFA has the objective to help unlock the EU's biogas production potential by fostering the adoption of technologies using manure to produce biogas, thus helping increase the adoption of renewable energy sources in the EU and helping reduce emissions from untreated animal waste. The project will identify drivers and barriers for the uptake of biogas in the EU livestock farming industry and will support farmers from 6 EU countries (Italy, Denmark, Belgium, Slovakia, Greece and Spain) through its own co-created solutions, including financial, business, and technical support services as well as capacity building seminars. In parallel, the project will develop an Engagement Platform to host tools that facilitate collaboration and knowledge exchange among industry actors and provide credible estimations of each farm's biogas potential, prospect profits, and environmental and social impacts. Moreover, ALFA will inform all relevant stakeholders via awareness-raising campaigns and policy recommendations and will provide guidelines for replication of its results in other regions.

Coordinator: **Q-PLAN**

| PARTNER | | SHORT NAME |
|---|---|---|
| Q-PLAN INTERNATIONAL | Q-PLAN INTERNATIONAL ADVISORS PC | QPL |
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| AzzeroCO2 | AZZERO CO2 SRL | A0CO2 |
| CERTH | CENTRE FOR RESEARCH & TECHNOLOGY HELLAS | CERTH |
| Food & Bio Cluster Denmark | FBCD AS | FBCD |
| Sustainable INNOVATIONS | SUSTAINABLE INNOVATIONS EUROPE SL | SIE |
| WHITE | WHITE RESEARCH SRL | WR |
| PEDAL CONSULTING | PEDAL CONSULTING SRO | PED |
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