

## Deliverable D7.4: Exploitation Strategy

<i>Work Package:</i>	<i>WP7 - Institutional Communication and Capitalization of the project results</i>
<i>Task/s:</i>	<i>WP7.2 - Dissemination activities</i>
<i>Responsible Partner:</i>	<i>CNR-IIA</i>

### Document history

Version	Date	Authors	Reviewers
V1	06/07/2017	M. Segreto, V. Paolini, L. Paciucci, L. Tomassetti (CNR-IIA)	F. Petracchini (CNR-IIA), S. Drigo, I. Bientinesi (AzzeroCO2)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 691875

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## 1. Introduction

While dissemination deals with making the results of the project visible at different levels, exploitation contributes and ensures the use of the project results after its implementation.

The exploitation plan will describe the necessary activities in order to adopt the results to guarantee the continuation of ISAAC after conclusion.

The main goal is to allow others to benefit and be influenced by the project outputs, increasing the knowledge of biogas and biomethane production, benefits and advantages in Italy, from an economical, environmental and social point of view.

In the Article 28 of the Grant Agreement, the beneficiaries must, up to four years after the duration of the actions (30 months), ensure exploitation of its results by:

- a) Using them in further research activities;
- b) Developing, creating or marking a product or process;
- c) Creating and providing a service
- d) Using them in standardization activities

The plan will describe the activities to undertake in order to ensure the continuation of the project beyond the implementation period.

## 2. Exploitation

Exploitation strategy is essential for the sustainable development of all results achieved during the ISAAC project, and after its implementation. It is associated with the use of the ISAAC results at different levels, so either the consortium as a whole or the individual partners will work in order to maximize the exploitation at national and European level.

The consortium has already planned some exploitation activities, the majority of which aims at promoting the project by means of presentations at related events, and general publications, as well as creating the necessary synergies for the use of the project outcomes by other European projects (and eventual partners), in order the project to be the base for further researches and projects.

### 2.1 Exploitation as Consortium

ISAAC is a Coordination and Support Action, so the outputs that have the most value for the exploitation will be:

- Encouraging the uptake of information and news about biogas/biomethane applications and anaerobic digestion
- Involving farmers and other economic subjects in considering biogas as a new source of revenue and increasing their engagement in energy transition
- Developing tailored financing schemes to fund plants;
- Assessing socio-economic and environmental impacts through surveys, cost/benefit analysis and other methodologies;
- Increasing the biogas share in the final energy consumption by reducing NIMBY conflicts
- Developing a more effective policy at national and regional level by producing clear and concrete proposals for law improvements and harmonization of authorization procedures;

#### 2.1.1 Encouraging the uptake of information and news about biogas/biomethane applications and anaerobic digestion

ISAAC is the acronym of Increasing Social Awareness and ACceptance of biogas and biomethane, so one of the main goal of the project is the uptake of correct information and news about biogas, biomethane and

renewable energies. All activities implemented and the one that will be performed aim to create an “ISAAC community”, made of people with knowledge on topic, ready to discuss about it in a more scientific approach, after checking data, listening to experts, creating an informed opinion.

One of the most powerful instrument is the project website, and the related Facebook page, which will be on-line and available for 4 years after the end of the project, updated with news on biogas/biomethane and renewable energy world. All information published are tailored for the users in order to let them look in depth at the themes of biogas and biomethane, using the website and the connection to other related websites and projects.

This will increase the number of persons in the community, and the website double language IT/EN is widening the potential audience not only in Italy, but also in Europe.

Another tool to be used is the “Buck Bradley Comic Adventure” APP, used for the activities in the school but available also for other users. The app, through the game, it teaches users on biogas and biomethane technology, and biomass energy potential.

The APP has a dedicated website and a Facebook page (Terrastramba), realized around the imaginary world in which the main character Buck Bradley is living. Using the website and the Facebook page, the user can get more detailed information about the story, the characters, what is the idea behind it and its potential future uses, as well as information about renewable energies (biogas in particular).

The app is on line for free, without in-app purchases, without advertisements and with the possibility to be played off-line once downloaded. The app will still be available after the end of the project, and in order to widen the audience it will be translated in English. The idea is as well to create more episodes of the “Buck Bradley saga”, using the same character and locations to teach people about renewable energies.

On a more scientific level, the results of ISAAC will be used to produce scientific papers on peer reviewed journals, and it will be presented on scientific conferences among Europe. Among the others, the most suitable conferences for the exposition of ISAAC results are ECOMONDO, REGATEC, EUBCE, BIOENERGY CONGRESS AND EXPO, ICWMRA (International Conference on Waste Management and Recycling Activities),

ECOMONDO is the leading expo of Euro-Mediterranean area on green and circular economy. An international event with an innovative format that brings together all sectors of the circular economy in a single platform: from material and energy recovery to sustainable development.

CIB and Legambiente every year set up a stand in Ecomondo. The Isaac project will organize an event in this expo with the aim to spread the results and to create a meeting opportunity and discussion between experts, citizens interested, people who want to create business and service providers.

REGATEC (International Conference on Renewable Energy Gas Technology) is one of the most important conference in the field of renewable energy in Europe. The conference has a technical and industrial focus, with experts presenting the latest advances within the fields of biogas, gasification and Power-to-gas. A unique place to spread the ISAAC results, considering that 2017 edition was attended by more than 200 delegates from 24 different countries.

EUBCE (European Biomass Conference & Exhibition) represents the leading platform for the collection, exchange and dissemination of scientific know-how in the field of biomass. The importance of presenting ISAAC results is crucial to exchange knowledge and experience in the field of biomass, and as well to be updated on the most recent researches on the field.

Main topic of The World Bioenergy Congress and Expo is “Bioenergy: Mobilizing the Bioeconomy and Globe through Innovation for a sustainable world” with an objective to encourage young minds and their research abilities by providing an opportunity to meet the experts in the field of Bioenergy. Bioenergy congress is designed to explore various applications in different fields.

The ICWMRA International Conference on Waste Management and Recycling Activities aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Waste Management and Recycling Activities. It also provides the premier interdisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of Waste Management and Recycling Activities.

The biogas plant prototype realized within the project by CNR-IIA will be exploited during scientific festivals, conferences and for further school activities (eg. Science Festival in Genua, Fa La cosa Giusta, Ecofuturo, Energy MED) in order to explain how a plant works, from the biomass till the biogas production.

The prototype, with its transparent structure and its small size (it's installed in a truck), it is in the ideal scale to be transported and show the functioning of a plant in different context and to different audience.

### 2.1.2 Involving farmers and other economic subjects in considering biogas as a new source of revenue

The farmers have a huge role in the project, considering that they are potentially the most interested for the biogas/biomethane plant investment.

During the project several meetings with farmers and entrepreneurs had already been organised in order to explain the potential of biogas and biomethane on an economic, social and environmental level. The consortium organized as well a visit to a plant, in order people to understand better how a plant works, the effort needed to create and manage it, the potential of energy production.

Meetings will be carried out after the end date of the project, as well as the visits to the plants, in order to increase the interest of farmers towards biogas and biomethane technologies, removing eventual doubts on the topic on a financial, environmental and social level.

### 2.1.3 Developing a pre-feasibility study on the biogas plant

In order to develop a pre-feasibility study on the biogas plant realization, giving an idea on investment, ROI, funding possibility, as well as environmental impacts, the consortium created a computational tool, available on-line on the project website.

The tool gives the user the possibility to insert the exact quantities of available biomass and biogas/biomethane production on the bases of the knowledge of essential input data or calculate it with an expert system.

The tool also calculates the possible economical revenue from the available biomasses with a chosen technology, and the relative environmental impacts for the territory.

The tool is a powerful instruments for the farmers to have an idea of their situation and the potential cost, investment and remuneration of building a biogas plant.

The tool is available for free on the website since July 2016, and it will be on the website as long as the website will be on-line. It is a dynamic instruments, and during the project partners are working on it in order to create a better developed tool with updated information and user-friendly approach.

In order to maximize the impact of the tool it will be translated in English, in order to give the non-Italian speakers the possibility to use it..

In order to give visibility to the tool and allow interested people to use it, it will be advertised not only during the events and the activities carried out during the project, but also through e-mails to the European

associations (farmers associations, agricultural unions, etc.). Assessing socio-economic and environmental impacts through surveys, cost/benefit analysis and other methodologies.

The results coming out from the diffusion of the project and tools output will be extended by various partners at different levels, expected results will be: increase of the knowledge about local availability of biomasses, increase of the network between partners for design and construction of new plants, expected increase of biogas production, increase of the environmental protection due new plants.

The projects carried out surveys in different Italian territories in order to have a better understanding on the population knowledge on biogas and biomethane topics.

The data coming out from the survey will be used to produce scientific papers and they will be presented on conferences and meetings among Europe.

Moreover, the data will be used to give support to policy makers to understand the population approach in their territories towards biogas plants and production.

#### 2.1.4 Increasing biogas share in the final energy consumption by reducing NIMBY conflicts

The methodology developed during the project in order to reduce NIMBY syndrome in Italy on biogas and biomethane plants will be publicly available and ready-to-use for policy makers and stakeholders which will face similar problems in the future, in Italy but also in Europe. The results of activities like participatory processes, events with experts, dissemination material produced and spread, activities in the schools are a good starting point for whoever needs to have a general overview on the population in a “tough” country for the biogas like Italy.

The results produced by these actions will foster the creation of new plants well executed and conducted and as consequence the increase of the renewable energy production. Increasing the number of persons with correct knowledge on the topic of biogas and biomethane will lead to a reduced nimby syndrome, and consequently reduced number of conflicts for every new plant construction project. The process will bring to the main results of more renewable energy use in Italy, specifically biogas and biomethane,

#### 2.1.5 Developing a more effective policy at national and regional level by producing clear and concrete proposals for law improvements and harmonization of authorization procedures

The project approach towards local and national administrators is double: from one side, training courses made by experts will be implemented in order to give the proper information on the exploitation of the potential of biogas and biomethane, to better understand the laws on the topic and to open to new entrepreneurship activities; on the other side, normative proposal on regional and national level will be implemented in order the biogas to better penetrate in the Italian market without all the difficulties faced until today.

The proposals will focus on the public debate regulation for project with relevant impact at a national level, and on the fragmented administrative path for the biogas plant realization at a regional level. The project will implement proposal on improvement of the national law on the biomethane injection in the national grid as well as a proposal on the digestate.

The results of this actions will bring to an easier path for the constructions of new plants, for the injection of the biomethane into the national gas grid and for the use of the digestate after the process. The procedures will finally focus on the technical, technological and scientific issues regarding the plant rather than on the actual bureaucratic difficulties and regional differences in the regulation.

### 3. Individual partner exploitation

#### 3.1 AzzeroCO2

AzzeroCO2 is an Energy Service Company which promotes sustainability and social responsibility projects through campaigns for citizens, administrations and local companies so as to increase public awareness about climate change and to foster the use of renewable energy sources and sustainable mobility solutions. As a coordinator of the project, and responsible for the Networking activities, role in the exploitation of AzzeroCO2 will be creating synergies in Italy and Europe with other projects and potential partners on the same topic.

#### 3.2 Legambiente

Legambiente is the most widespread environmental organization in Italy. Values for the association are the improvement of environmental quality, the fight against all forms of pollution, a wise use of natural resources. Legambiente is engaged in educational policies and awareness campaigns on multiple fronts, every year experts run several campaigns where children and parents together collaborate to improve schools and cities liveability and safety. As event organiser and responsible for the participatory processes, Legambiente will collect all data and results from their activities in order to produce report available for future use, giving the possibility to understand how the methodology developed during ISAAC can be implemented in the future, and the best approach to the different target groups. Legambiente has a strong presence as well on the internet, with different communication channels (website and social media channels) with a big audience. Legambiente will use its channels as well to promote ISAAC results after the project end date.

#### 3.3 CNR-IIA

The Institute of Atmospheric Pollution Research of the National Research Council of Italy (CNR-IIA) is involved in national and international networks of excellence and provides high scientific consulting in several sectors related to bioenergies. Research activities also include the development of novel methodologies and prototypes for biomass gasification and tar removal, anaerobic digestion, digestate drying, wastewater denitrification and biogas cleaning and upgrading to biomethane. As a research centre and responsible for the capitalization of the results WP, the main goal of the CNR-IIA is to present data

obtained from the project in scientific papers and conferences and meetings among Europe. Moreover, CNR-IIA will be responsible for the implementation of the website of the project and related facebook page, in charge to increase the community created around the project. Last, in cooperation with Universities, CNR-IIA will give endorse some student's thesis work based on the topic starting from ISAAC results data. CNR-IIA will be responsible for the prototype and its use after the project, during science festivals, meetings and activities with students of schools.

### 3.4 CNR-IRCRES

IRCRES-CNR (Institute of Research on Sustainable Economic Growth, Italian National Research Council) is an economic research institute. The main fields of research are: Firm strategy and industrial structure; Studies in industrial organisation; Local development dynamics (industrial districts and clusters); Studies on innovation, natural resources and the environment; Technological innovation and competitiveness. As responsible for the surveys and cost/benefit analysis, CNR-IRCRES will use data and results of the project to produce scientific papers to be published on peer-reviewed journals and presented on conferences and meetings around Europe. As well as the other institute, also CNR-IRCRES will use data for the thesis work of students in cooperation with universities.

### 3.5 Chimica Verde Bionet

Chimica Verde Bionet (Green Chemistry Bionet) is a no-profit organization that promotes and develops, according to ecological and sustainable criteria, the research, the application and the dissemination of industrial products based on plant or animal raw materials. The main activities of the Association are dedicated to the agricultural production phase, the related environmental balances, the life cycle analysis and definition of models for the production of biobased products. As responsible for Normative fragmentation WP within the project, the work of Chimica Verde Bionet to exploit the results of the project will be to lobby towards local, regional and national policy makers for the implementation of the proposal on national debate regarding projects with strong impact on the territory, and guidelines on administrative process for creation and development of bioenergies plant.

### 3.6 CIB

Consorzio Italiano Biogas brings together manufacturers of biogas and syngas from renewable sources (mainly agricultural biomass), business or industrial companies which supply equipment and technology, bodies and institutions that contribute in various ways to achieve social purposes in Italy. CIB aggregates 526 ordinary members (plants), 38 company members (manufacturers of biogas plants), 9 institutions and 62 partners (companies operating in the world of biogas). CIB will continue its work on participating in events, conferences and meetings in order to give correct information about biogas and biomethane, and spreading ISAAC results also through its website and social media channels. CIB will keep on fighting against NIMBY syndrome organizing public events and visit to the plants of their associates, in order to show how a plant really works, how disinformation can be defeated by correct information and scientific approach based on data.

#### 4. Conclusions

ISAAC project is expected to deliver a series of results and recommendations around the biogas and biomethane world, and to increase their awareness and acceptance within the population.

All partners agree to use the results of the project after its end.

More specifically, the two research institutes of CNR expect to use these results in further research activities and in scientific publications

AZZEROCO2 is mainly interested to use the results of the project to increase his European network and to develop further activities on this topic at national and international level.

Legambiente will be able to present the results of the project in their awareness and public events in the future, as a database to better understand the people approach towards renewable energies.

Chimica Verde Bionet will use the results for their lobby work on regulations and laws on renewable energy and participation process.

CIB with data obtained from the Isaac project will foster its activities on biogas and biomethane penetration in the Italian territory and spreading correct information about the topic.

All partners will especially try to promote the ISAAC “scientific” approach based on data and on correct information, to bring results beyond Italian borders to European stakeholders and institutions.

The present deliverable will be updated at the end of the project with a new version with all details of conferences, scientific papers, results obtained and all events that have been organised, in addition to the updated version of the exploitation strategy of results taking advantage of the experience gained during the last period and the progress of the project’s activities.