



LIFE09 ENV/GR/000307
Action 2.2.5 Technical Consultant

Deliverable 2.2.5.7: After-LIFE Communication Plan

*(Action 9.1: "After-LIFE Communication Plan"
of approved Application Form)*

Date
30/12/2014

LIFE+

ENERGY WASTE

Project Data

Project location	Greece
Project start date:	01/01/2011
Project end date:	31/12/2014
Working team	EUROACTION ΣΥΜΒΟΥΝΟΙ ΕΠΙΧΕΙΡΗΣΕΩΝ

Data Beneficiary

Name Beneficiary



HELLENIC REPUBLIC
REGION OF CENTRAL MACEDONIA

Project Website <http://www.energywaste.gr/>



THE PROJECT

The scope of the project **LIFE09/ENV/GR/00307 - ENERGY WASTE**, funded by the financial instrument **LIFE+**, is to study, develop and implement an advanced gasification concept for the energy exploitation of the non-recyclable stream of modern recycling factory, towards electricity generation from the non-recyclable fraction of urban waste, which otherwise is

The Aim of the Project

disposed at landfills.

The main aim of the project is to demonstrate an effective way of exploiting non-recyclable

The main objectives of the Project

waste for electricity generation purposes.

- Mechanical treatment of the residual urban waste towards the production of RDF/SRF, according to the developing standard EN/TC 343.
- Characterization and standardization of produced RDF/SRF according to the developing standard EN/TC 343.
- Gasification of the classified RDF/SRF to produce a combustible gas, potentially used in the existing biogas collection network for electricity generation.
- Demonstration of the RDF/SRF energy exploitation technology, for dissemination and implementation in Greece.
- Environmental impact assessment of the proposed action and dissemination activities to promote the energy exploitation of urban waste and/or other residues.
- Review and sustainability analysis based on the experience acquired throughout project execution.
- Cost - Benefit Analysis execution, as a tool for economic evaluation of methods, scenarios and schemes developed, for highlighting most prominent options.



Image 1. Circulating fluidized bed gasifier.



LIFE09/ENV/GR/00307 - ENERGY WASTE

THE PROJECT IS HIGHLY RELEVANT TO THE EUROPEAN ENVIRONMENTAL POLICY

The national policy of Greece, regarding waste materials, is in accordance with the European Directive 1999/31/EC and intends to maximize the amount of waste that is recycled or exploited for energy production. Thus, the whole project is based under the particular framework.

THE DISSEMINATION STRATEGY AFTER THE END OF THE PROJECT

MULTIPLE DISSEMINATION ACTIVITIES:

PROJECT WEBSITE (<http://energywaste.gr/>)

The website is the main dissemination tool providing available valuable and updated information and instructions. In the framework of the on-line project dissemination for facilitating the wider dissemination of the project results, the project website is included as a link in similar websites from other EU-funded projects: the EU-funded project "BIOFUELS-2G", <http://www.biofuels2g.gr/> and the European commission webpage <http://ec.europa.eu/>. In addition, a link to the project's website is provided through the project members' own websites: www.watt.com.gr, www.lignite.gr, www.pkm.gov.gr, www.eref-europe.org, www.certh.gr, <http://iswm-tinos.uest.gr>. It is highlighted that in order to facilitate the transferability of the results, the website will be operational for at least five (5) years after the project termination according to the Approved Application Form. Finally, for the wider promotion of project's work via the internet, research was conducted in order to examine the provided results related to the project in several search engines: Google, Bing, Yahoo, Ask, Wow, WebCrawler, MyWebSearch, Infospace, Info, DuckDuckGo, Blekko, Contenko, Dogpile, Alhea, and with specific keywords: the acronym of the project, words "waste management", "RDF / SRF classification", "RDF gasification of waste", "energy use non-recyclable materials",



Image 2. Interior of WATT's MRF in Kropia

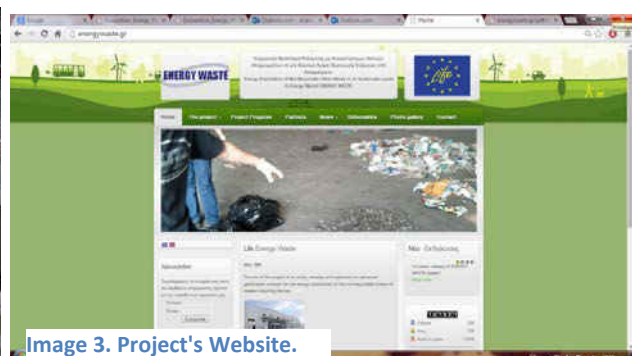


Image 3. Project's Website.



LIFE09/ENV/GR/00307 - ENERGY WASTE

"waste gasification", "waste management gasification". Those data can be used for future dissemination actions after the project's end.

In particular the project's website which will remain active for five (5) years after the project final end date (31/12/2014), allowing interested parties and stakeholders to access project methodology and deliverables. The project's website was continuously updated throughout its implementation with up to date news feedback and deliverables.

Moreover the project will be presented through each partner's website the link of the project website (<http://energywaste.gr/>) is also available securing potential continuation of the project to all possible interested stakeholders.

Other Dissemination Material

PROJECT POSTERS.

500 posters were produced in two versions, 400 produced in Greek and the rest 100 in English. In total 319 Greek posters and 82 English posters were distributed throughout the project and the rest 81 and 18 respectively will be distributed in future activities of the project.

PROJECT LEAFLEATS

5.000 leaflets were produced in two versions, 3.500 produced in Greek and the rest 1.500 in English. Throughout the project 2.610 Greek leaflets and 1.250 English leaflets were distributed and the remaining 890 and 250 respectively will be distributed in future activities, after the end of the project.

ADDITIONAL MATERIAL (TEXTILE BAGS)

1.000 textile bags were produced and distributed during the dissemination events. In total 600 textile bags were distributed and the remaining 400 will be distributed in future activities of the project.

LAYMAN REPORT

500 copies of Layman report were developed and printed.

Along with the project website, it is conceived as the main tool for disseminating information about the project and may serve as a key marketing tool that will help to draw attention to the work of ENERGY WASTE project, even after its end. Moreover, it often serves as the main



LIFE09/ENV/GR/00307 - ENERGY WASTE

source of information for journalists and other parties, wishing to find out more about the project.

The remaining copies will be distributed in future activities, after the end of the project.

NEWSLETTERS

1 e-newsletter will be published 6 months after the project termination.

Scientific Publications


 5 research papers within the project framework were published. These are shown in the following Table. The dissemination and impact of the research work in time Scopus references and Google Scholar citations will increase, and the visibility of the Project's results will increase as well. Therefore, research papers are a promising tool for the dissemination and transferability of the Project's results after the end of the project.

Table 1: Scientific Publications

A/A	Title of publication	Authors
1	Solid Recovered Fuels' quality assurance and standardization – current status in the EU – the situation in Greece, paper presented at the Conference 'MSW: management systems and technical solutions', Moscow, Russia, 28-29 May, 2013	Vounatsos, P., Agraniotis, M., Nikolopoulos, N., Grammelis, P., Kakaras, E.
2	Comparison of waste-to-energy processes by means of Life Cycle Analysis regarding the global warming potential impact, paper presented at the 4 th International CEMEPE and SECOTOX Conference, Mykonos, Greece, 24-28 June 2013	Kourkoumpas, D., Karellas, S., Gramellis, P.
3	Sustainability of gasification process, depending on input refuse derived fuel quality, paper presented at the 4 th International CEMEPE and SECOTOX Conference, Mykonos, Greece, 24-28 June 2013	Kourkoumpas, D., Vounatsos, P., Agraniotis, M., Grammelis, P., Kakaras, E.
4	Presentation of the Project LIFE09/ENV/GR/000307: Energy Waste (in Greek), paper presented at the 4 th International Conference of EEDSA, Athens, Greece, 30 November-1 December 2012	Koufodimos, G., Vounatsos, P., Agraniotis, M., Roufos, K., Eleftheriadis, C., Grammelis, P., Kakaras, E.



LIFE09/ENV/GR/00307 - ENERGY WASTE

5	Characterization and classification of Solid Recovered Fuels (SRF) and model development of a novel thermal utilization concept through air-gasification, paper presented at the 25 th ECOS Conference, Perugia, Italy, 26-29 June 2012	Vounatsos, P., Atsonios, K., Agraniotis, M., Panopoulos, K.D., Koufodimos, G., Grammelis, P., Kakaras, E.
---	--	---

Presentations in Conferences & Exhibitions

Conferences

The project will be presented in international and national conferences and exhibitions organized in the framework of other relevant to energy waste European projects, in specific:

- Global Conference on Global Warming 2015, May 24-27, Athens, Greece.
- Fifth International Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE 2015) & SECOTOX Conference, June 14-18, Mykonos, Greece.

Moreover, the project will be presented in Conferences of relevant projects in which the partners act as participants. In particular:

- RCM aims to present ENERGY WASTE in the Conferences and the Workshops of the following projects:
 - ENERGEIA: Fostering the use of low temperature geothermal sources through the development of operational exploitation guidelines and green energy solutions of enterprising. The project is financed by the Territorial Cooperation Programme “Greece – Bulgaria 2007-2013”.
 - AGROLESS: Joint reference strategies for rural activities of reduced inputs agriculture. The project is financed by the Territorial Cooperation Programme “Greece – Bulgaria 2007-2013”.

Exhibitions

Finally, considering the positive outcomes of the project’s participation in the 7th International Exhibition «Building Green Expo 2014», it is strongly suggested for the project to take part in 2 more Exhibitions. Both of them should have international character and should be about



LIFE09/ENV/GR/00307 - ENERGY WASTE

waste and recycling. Additionally, it is proposed to participate in an Exhibition within Greece and the 2nd one within Europe to further disseminate the project's results inside the EU.

The benefits that the project could gain from a participation in an Exhibition are: first of all the development of new contacts and at the same time strengthening the existing ones. Also, Exhibitions have normally a specific topic, thus it attracts highly targeted audience that gives the opportunity to meet new people who are relative to the project and as a result the already established network can be expanded and improved. However, Exhibitions are always attracting the general public as well, which is very important for the Energy Waste project since their education and awareness regarding the project's scope can contribute positively to the implementation of the project's aims.

The first suggested Exhibition that the Energy Waste project could take part is the "Save the Planet" (<http://viaexpo.com/en/pages/waste-management-recycling-exhibition>) that will take place in Sofia, Bulgaria from 11th to 13th of March, 2015. The specific exhibition promotes updated solutions in waste management in South-East Europe, its scope includes: waste collection, transport, treatment, landfill management and operations, recycling technologies and equipment.

Keeping pace with the market trends and demand "Save the Planet" Exhibition encourages the waste and recycling technology transfer to South-East Europe. It will provide participants with a quick market entry and opportunity to meet face-to-face state and municipal representatives e.g. government officials, mayors, ecologists, branch associations, investors and entrepreneurs, executives from the sectors: waste management, recycling, ecology and related industry branches.

The second proposed Exhibition is the "Waste & Recycling EXPO" (<http://www.expoline.gr/en/exhibitions-in-greece/waste-recycling>) that will take place in ELLINIKO - FENCING Exhibition Center from 22nd to 24th of May, 2015. The particular exhibition seeks to highlight the means and technologies that are used: for the efficient and sustainable management of waste, to maximize recovery of materials and energy and minimize the impact on the environment and finally for the utilization of municipal waste in the process of alternative management and recycling.

The ultimate goal of the specific Exhibition is to be a forum for the presentation of solutions, services and technologies that contribute to sustainability and promote business development in one of the most dynamic sectors of the European economy.



Project Results

- ✚ The project will be constantly disseminated through its long term results. In particular:
- The variation of the quality of the produced Solid Recovered Fuel (SRF), leads to a difficulty in being accepted from industrial end-users. For this reason, in many cases, the standardization of the produced solid recovered fuels is considered as a means to greatly increase its marketability. The produced RDF in WATTs' material recovery facility, is classified according to the EU standards CEN/TC 343 of 4,2,1 (for the first year of sampling) and 4,2,2 (for the second year of sampling).
 - From the gasification tests of RDF, it was observed that the efficiency of the circulating fluidized bed gasifier was higher than the one found in references of bubbling bed. Moreover, it was found that for the commercial use of the unit, there is a necessity for further studying gasification by utilizing catalysts and a scale up of the designed gasifier. Gasification was found to be – depending on its use – a process that can not only be used for energy production but also for production of gas products such as methane and hydrogen.
 - A study on the Life Cycle Assessment (L.C.A.) was elaborated, in order to assess the viability of the plant according to environmental terms. The study focuses on the effect of the proposed gasification process to the greenhouse effect. According to the results of the L.C.A., the method of gasification of solid recovered fuels is proved to be environmentally friendlier than direct deposition of Municipal Solid Waste (M.S.W.) in landfills. The environmental benefits will increase if the recovery of recyclables is included in the calculations.
 - WATT SA aims to utilize the existing pilot unit. The gasification will remain in the confines of the company and it will operate on a pilot basis. There, testing of various materials and mixtures of secondary fuel will take place as well as performance testing of the installation. Students of Technical Schools and Universities can elaborate various studies related to the pilot unit and in parallel work and practice at the confines of WATT SA. In this manner WATT SA could create various specialized job positions. This could be done in collaboration with the Greek Manpower Recruitment Organization (OAED).



LIFE09/ENV/GR/00307 - ENERGY WASTE

- The “Regional Planning of Solid Waste Management and Strategic Study of Environmental Impacts” will be under revision procedure in order to be included in the Operational Program “Macedonia – Thrace” is perceived to be a great opportunity for the ENERGY WASTE project. In specific, as a result of the effective networking that occurred during the project’s workshops, an important opportunity is provided for the project’s results to be, firstly, evaluated and later integrated within the forthcoming planning. It has to be mentioned that the National Waste Management Plan for the period 2014-2019 specifically cites one of the Project’s conclusions, that cement industries may absorb up to 480,000 tons of RDF/SRF annually provided that they update technologically their facilities.

- Considering also the fact that the Association of Municipal Solid Waste Management of Central Macedonia (HSWMA of CM), which participated in the 2nd and 3rd project’s workshops with representatives, is the responsible body to implement the revision, it can be said that the project’s results will be considered during the planning. According to the approved OP of the Region of Central Macedonia for the period 2015-2019 there is no mention of RDF or the Region’s policy regarding RDF/SRF. However according to the 2.2.5.5 Deliverable the Region of Central Macedonia has a set of possible future actions for the better dissemination and exploitation of the Project’s results.

Table 2: Possible future actions by the Region of Central Macedonia for a better dissemination and exploitation of the results

Goal	Action	Timetable	Quantification of results - Evaluation
General dissemination of project results	Meetings with interested parties Actions to inform the public Recommendations	Until 2 years after the project completion	Number of meetings Number of contacts Dissemination material Site ‘traffic’
Dissemination of the Project’s results to the RMBSW	Meetings between the RCM and the RMBSW and as many of the other partners of the Energy Waste Project	3-4 months after the completion of the Project	Number of meetings Number of participants Dissemination material

The After Life Communication Plan



LIFE09/ENV/GR/00307 - ENERGY WASTE

Dissemination of the Project's results to the operational Sorting Centres for Recyclable Materials	Meetings between the RCM and the Sorting Centers for Recyclable Materials	1 year after the completion of the Project	Number of Sorting Centers for Recyclable Materials Number of meetings Number of participants Dissemination material
Actions for the promotion and support of recycling	Actions to inform the public Informing the public through the RCM site	Continuous actions	Number of Actions Number of meetings Number of participants Dissemination material Number of 'hits' on the site
Promotion of gasification	Recommendations for relevant gasification Projects Informing the public	Continuous actions	Number of meetings Number of participants Dissemination material
Utilization of the Project's results by services related to licensing	Notification of the Project's results to the related services	Continuous actions	Number of contacts to the various services Dissemination material
Dissemination of the Project's results through the Project's site	Continuation of the operation of the site for five years	5 years	Site 'traffic' Number of 'hits' on the site Number of downloads of the relevant material (e.g. Deliverables)