PLAS
CARB

INNOVATIVE PLASMA BASED TRANSFORMATION
OF FOOD WASTE INTO HIGH VALUE GRAPHITIC
CARBON AND RENEWABLE HYDROGEN

D 10.8 POST PROJECT ENGAGEMENT PORTAL

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement No 603488

Project deliverable

Project Number	Project Acronym	Project Title
603488	**PlasCarb**	**"Innovative plasma based transformation of food waste into high value graphitic carbon and renewable hydrogen"**

Instrument:	Thematic Priority
Collaborative project	**ENV**

Title
D10.8 Post project engagement portal

Contractual Delivery Date:	Actual Delivery Date:
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01.12.2013	**36 months**

Organisation name of lead contractor for this deliverable:	Document version:
Geonardo Ltd.	**20.11.2016 Draft for review by partners** **29.11.2016 Final version**

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Dissemination level (Project co-funded by the European Commission within the Seventh Framework Programme)

PU	**Public**	**X**
PP	**Restricted to other programme participants (including the Commission)**	
RE	**Restricted to a group defined by the consortium (including the Commission)**	
CO	**Confidential, only for members of the consortium (including the Commission)**	

Abstract :

The PlasCarb post project engagement portal provides interested users of the PlasCarb technology the opportunity to get an overview over the benefits as well as the requirements of the entire PlasCarb value chain. Moreover, it allows the user interested in adopting the PlasCarb technology to generate a preliminary assessment of the viability of the installation within a user set context. The portal documents the interest of users in the PlasCarb project and provides and interface for establishing contact and business opportunities between a user and PlasCarb.

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TABLE OF CONTENT

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement No 603488

1 Introduction

This deliverable provides a description of the post project engagement portal which is presented on the PlasCarb homepage and will be operational 5 years post project. In the following, the post project engagement portal will be named PlasCarb viability assessment. The purpose of the viability assessment is twofold:

1. To provide the interested society with an interface to easily access relevant background resources for the implementation and commercial exploitation of the PlasCarb technology.
2. To enable parties interested in the exploitation of PlasCarb within different environments carrying out preliminary assessments of viability and receive suggestions for further development and cooperation steps.

Based on project experiences from the contact with people interested in PlasCarb it is assumed that the PlasCarb viability assessment will be used by parties from a wide variety of backgrounds. This might contain representatives from enterprises in the waste management sector as one of the target groups of PlasCarb, parties commercially interested in Renewable PlasCarbon (RPC) as the green material potentially substituting carbon black or other interested users with a less sector focused occupation.

This report will describe the handling of the viability assessment by the user as well as the subsequently generated output of the PlasCarb viability assessment in the following two chapters, respectively, and will conclude with an overall statement of usefulness.

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2 User Handling

The PlasCarb viability assessment uses a straightforward structure to follow the twofold purpose as mentioned in the introduction, chapter 1. It is presented as a one-page application in order to provide the user with a concise portal (Figure 1). All functions of the viability assessment are accessible through this landing page within a few clicks. The PlasCarb viability assessment appears without a user manual and rather relies on a structure where all available actions are explained upfront and real-time when an action is being carried out.

As illustrated in Figure 1 the PlasCarb viability assessment contains an introductory segment in the upper left corner of the Viability Assessment landing page. The introductory segment is kept concise to inform the user firstly of the purpose and capabilities and secondly about three steps to use the viability assessment. The three steps are:

1. *Familiarise yourself with the PlasCarb technology and read the Policy Brief and the Case studies.*
2. *Adopt the PlasCarb technology: Fill in the viability assessment calculator to generate your customised pre-assessment of PlasCarb.*
3. *Voice your interest: Leave your requests and details on the contact form, submit your query and you will receive your customised output.*

STEP 1: The first step guides the user to the Background Material on the left hand side where the PlasCarb Policy Brief as well as the six PlasCarb case studies are integrated and publicly downloadable. These documents build the underpinning rational for the exploitation of PlasCarb and provide every interested user with essential information on the transferability and implementation of the PlasCarb technology.

STEP 2: The second step of the viability assessment contains the actual calculator below the introductory segment where the user will be able to select and insert a custom parameter.

The calculator allows the user to fill in one field based on the area of interest. Firstly, if a user is interested in the PlasCarb technology from the input/feedstock point of view she/he will be able to fill in an annual amount of food waste collected or an annual quantity of biogas produced, respectively. As a second case, a user might be interested in the output side of the PlasCarb technology, the production of RPC[1]. For this, the user can insert the amount of RPC to be produced annually. This custom input serves as one important calculation basis to create the customised user output which is detailed in the next chapter.

The user will be able to undertake two actions if she/he has entered a value in the viability assessment calculator:

1. Receive quick results based on the parameter specified in the input field, or
2. Download a detailed results report (Annex) with explanation and further recommendation based on the parameter specified in the input field. This action is only available if the user completed Step 3.

[1] As the second output, Renewable Hydrogen, has been deemed economically not viable at the project scale of production this output will be excluded from the viability assessment.

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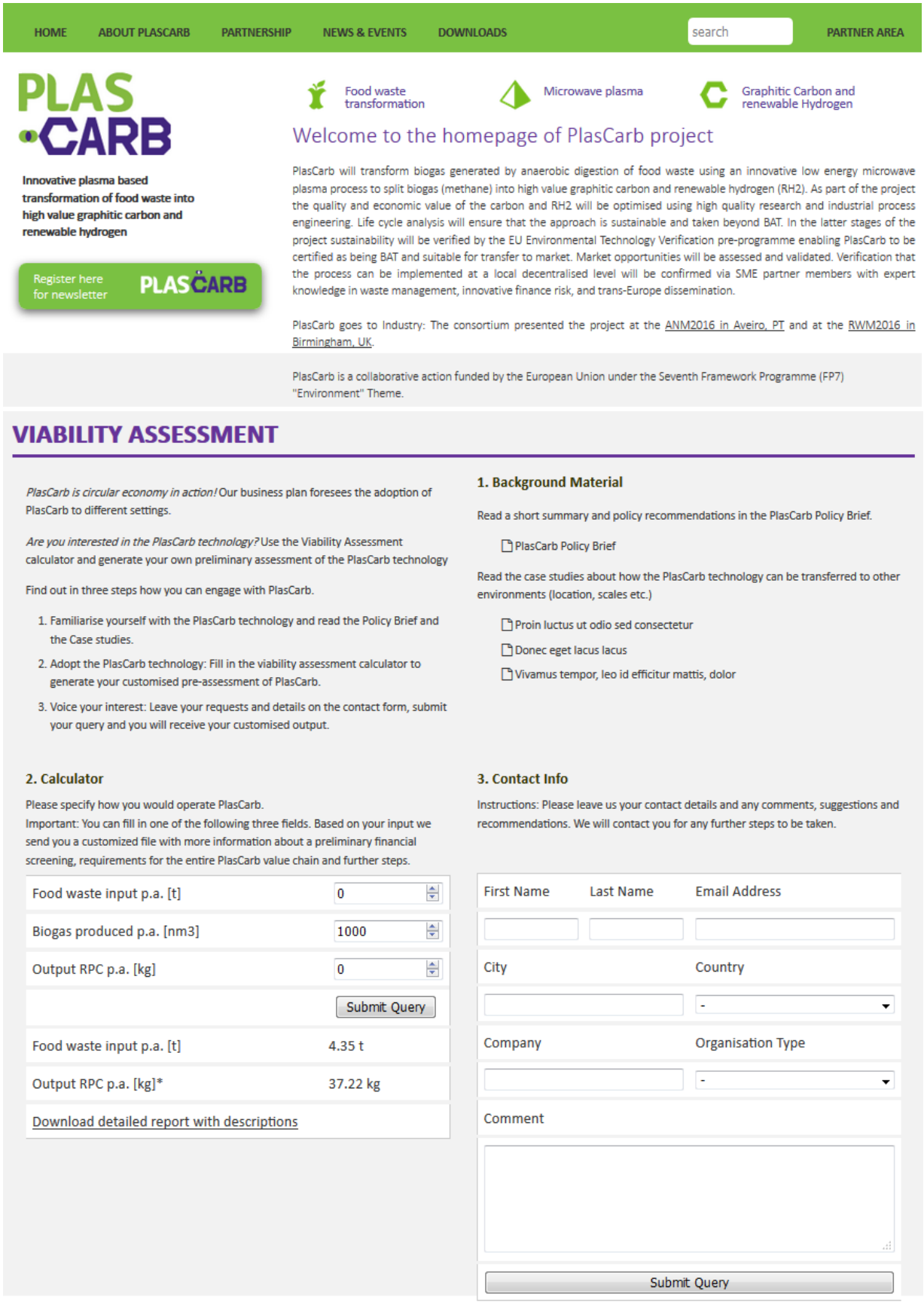

Figure 1: PlasCarb Viability Assessment embedded on www.plascarb.eu

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STEP 3: The third and last step encourages the user to complete the viability assessment by providing contact details and any comments she/he may have. This step also provides the function to submit the inserted data which will then be stored with the responsible project partner for exploitation and dissemination, Geonardo Environmental Technologies Ltd. in Budapest, Hungary.

3 User Output

The submitted information will feed in a calculation which is based on business data for the entire PlasCarb process. The output of the calculation will be provided to each user of the viability assessment in form of a customised output report (APPENDIX). The result figures listed in the customised report present information about technical requirements for the PlasCarb plasma reactors and a preliminary financial screening based on the specific user input.

A disclaimer is provided at the beginning of the document:

All values presented in this output sheet are indicative figures based on the parameters provided by you. The calculations laying behind do not contain an exhaustive range of parameters which might be necessary for your business model. The purpose of this sheet is to give you *(i)* an estimation about how the PlasCarb technology could perform in your context, *(ii)* what is required to set-up and integrate the technology and *(iii)* propose next steps for collaboration.

Along with the results of the viability assessment each customised output report contains two sections, namely a list of additional requirements to set-up the PlasCarb technology value chain and a section about next steps for further collaboration based on the specific data submitted.

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4 Conclusion

The PlasCarb viability assessment is a tool that can be used by all interested people in the PlasCarb technology and that provides an interface to carry out a quick, preliminary assessment of the viability of PlasCarb in different environments.

It must be emphasised that the PlasCarb viability assessment calculator is designed to be used in connection with other reference documents like the PlasCarb Policy Brief or the PlasCarb specific case studies. Only this combination of tools can fulfil the aim of the portal which is the knowledge transfer from the comprehensive PlasCarb technology, collected by the project partners over three years (December 2013 – November 2016), to each interested user.

Each user engaging with the PlasCarb technology via the viability assessment in the first instance will receive an above discussed customised output as preliminary assessment but is subsequently encouraged to contact PlasCarb for any further steps.

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5 APPENDIX

Output report of the PlasCarb viability assessment. A customised version of this document will be created and provided for download automatically to each user of the viability assessment. By means of the reference number, the user will be able to contact Geonardo Ltd. and agree on further steps for collaboration.

PLASCARB

PlasCarb Viability Assessment

Customised output for

First name, last name

25 November 2016
Reference Nr. 8dc7efd3
Geonardo Environmental Technologies Ltd.
7 Záhony street, HU -1031 Budapest
www.plascarb.eu
info@plascarb.eu

Disclaimer: All values presented in this output sheet are indicative figures based on the parameters provided by you. The calculations laying behind do not contain an exhaustive range of parameters which might be necessary for your business model. The purpose of this sheet is to give you (i) an estimation about how the PlasCarb technology could perform in your context, (ii) what is required to set-up and integrate the technology and (iii) propose next steps for collaboration.

1. Results of the viability assessment:

Input

Biogas produced p/a	**1000**	nm^3	Annual biogas input provided for the operation of the PlasCarb technology. Note: Biogas needs to be upgraded to fulfil specifications for the plasma reactor.

Output

Food waste input p/a	**4.35**	t	Annual food waste input provided for the operation of the PlasCarb technology
Output RPC p/a	**37.22**	kg	Based on the performance of the plasma reactor.
Nr. of plasma reactors required	**1**		PlasCarb works with 12 kW reactors with a specific requirement for biogas quantity. The number of plasma reactors is dependent on the biogas input quantity.
Staff required for the reactors	**2**		
Electricity requirement of the reactors p/a	**60,912.80**	kWh	Requirement for the number of plasma reactors.
Revenue from RPC	**15,249.84**	EUR	An assumed revenue of 350 GBP (ca. 410EUR) per kg RPC.
OPEX without Electricity requirement p/a	**78,269.95**	EUR	This figure contains only the operational expenditures **for the specific number of plasma reactors**. Included: Staffing costs, operational equipment, consumables. Excluded: Electricity costs (reason: these are depending on the country and the local provider), capital expenditure (reason: These are one-time expenditures and subject to depreciation, may vary upon the business model applied); capital- or operational expenditure for any other technologies within the PlasCarb value chain.
Profit/Loss	**-63,020.10**	EUR	Revenue from RPC minus OPEX

2. Additional requirements:

Additional requirements for the PlasCarb technology value chain which are not included into the outputs reported above:

- Anaerobic digestion plant
- Biogas Upgrading unit

3. Further steps:

If you are interested in further collaboration based on the indicative numbers presented here please contact Geonardo Environmental Technologies Ltd. with the mention of your reference number.

PlasCarb Viability Assessment Tool v1.0 page 1/1

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