



ID: 641073

Bio-HyPP

Deliverable No	Title	Submission Due Date	WP/Lead
D5.3	Leaflet and poster of the project	30.11.2015	WP 5/ D'APPOLONIA
Short Summary	The present deliverable concerns with the design of the Bio-HyPP leaflet and poster, which have been developed and released by Month 6 of the project.		
<p>These documents are part of the dissemination material of the project, which provide publishable information to the different stakeholders.</p>			
Printed Date			30/11/2015

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





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1 Introduction

Bio-HyPP is a Horizon 2020 EU funded project started on 1st June 2015 and that will run for 4 years. Bio-HyPP aims to develop a full scale technology demonstrator of a hybrid power plant using biogas as main fuel in lab environment, in order to reach the goals of improving the efficiency of CHP systems while simultaneously widening the biomass feedstock base as well as increasing operational flexibility.

This report constitutes deliverable D5.3 “Leaflet and poster of the project” and it has been prepared in the framework of the activities of WP5 “Dissemination, exploitation and stakeholder engagement”. The deliverable reports about the preparation of preliminary dissemination material, namely the project Leaflet and Poster.



2 Preliminary dissemination material

2.1 Project Leaflet

The following figure shows the project leaflet that has been prepared for the Bio-HyPP project, which will be handed out to increase the awareness of the project and of the project goals. The leaflet briefly describes the context of the project, the concept and its objectives. The leaflet is shown below:

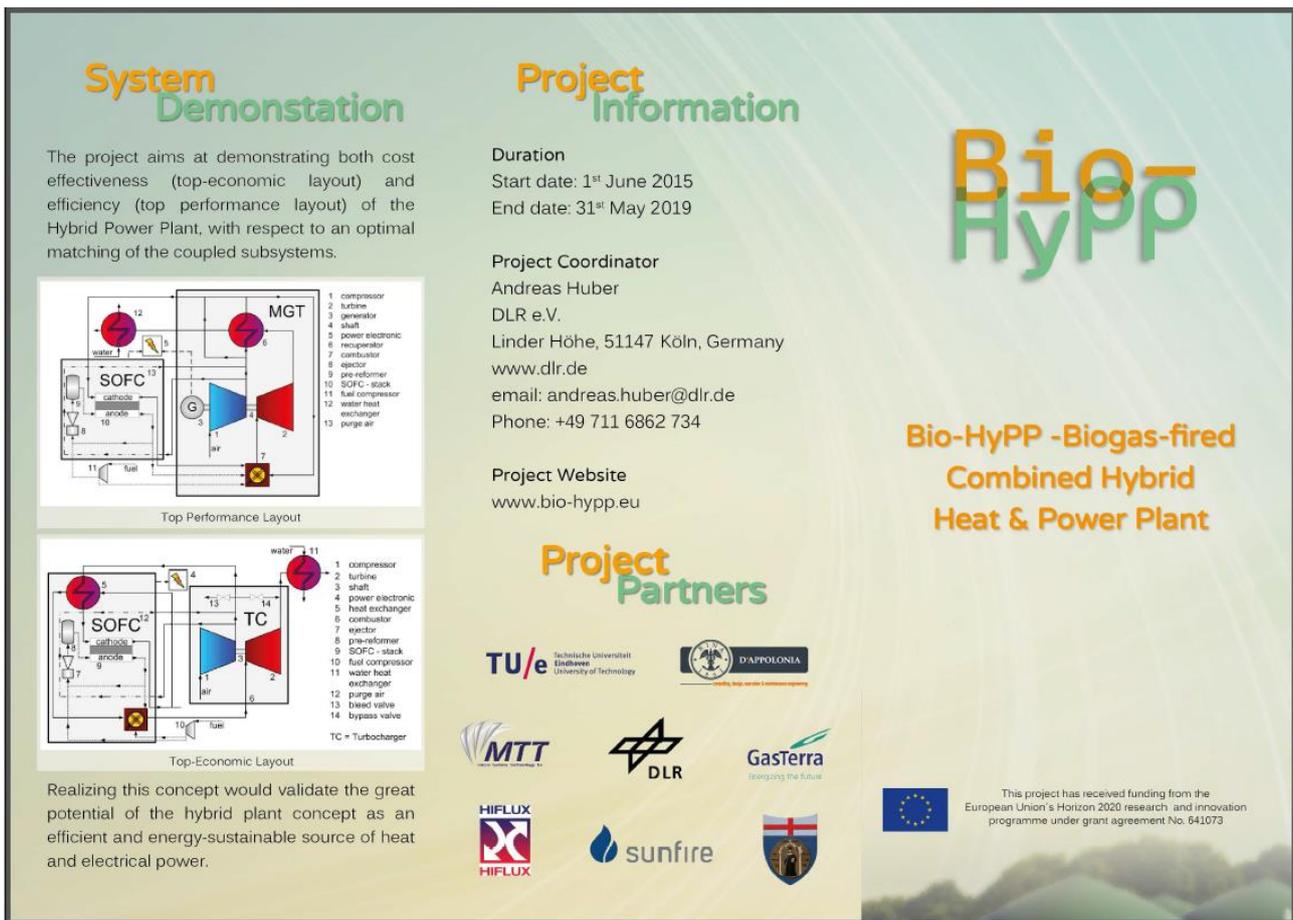


Figure 1: Bio-HyPP Tri Fold Leaflet Front



Context & Future Challenges

Distributed combined heat and power (CHP) systems provide thermal and electric energy in an efficient, clean and cost-effective way. They minimize transmission losses and waste heat that result from separated production of heat and electricity. In addition, when renewable biofuels are used in CHP systems, CO2-neutral power generation can be achieved.

The main future challenges for CHP systems lay at the user and power-network side: the ratio between produced electrical power and heat has to increase, as well as operation flexibility with respect to power demand. CHP systems need also to be able to withstand varying fuel qualities.

What is Bio-HyPP?

The Bio-HyPP system is a hybrid power plant system – a combination of solid oxide fuel cells (SOFC) and a micro gas turbine (MGT).

It is a highly-efficient as well as highly load- and fuel-flexible CHP system with lowest emission that will help reach the goals of improving the efficiency of combined heat and power systems, while simultaneously widening the biomass feedstock base as well as increasing operational flexibility.

Solid Oxide Fuel Cells

The mechanical stability of the SOFC will be analyzed. Tests with pressure differences between gas compartments will be carried out and causes for cell failure evaluated. The results will be used to improve the component, so as to cope with larger pressure differences.

Micro Gas Turbine

The project will design micro turbine components for high peak efficiencies. Components for turbochargers will be designed for wide operability limits. Air bearings will replace oil sleeve bearings. The recuperator will be developed so as to operate at more extreme conditions without any decrement to performance and still achieve a reduction in current cost.

Use of Biogas

The combined SOFC Off-gas and micro gas turbine combustion system will use biogas and mixtures of biogas and natural gas. The combustor will be designed for a high load range as well as a large temperature range at the burner inlet, covering varying changes in SOFC-Off gas conditions and different biogas qualities over the entire operating range.

Coupled Hybrid Power Plant

To achieve the objectives in terms of efficiency, emissions and costs, the subsystems and their components will be developed, adjusted and improved for the optimal integration into the coupled Hybrid Power Plant.

Project Objectives

The project will develop and realise a full-scale technology demonstrator of a Hybrid Power Plant in a lab environment suitable for gaseous sustainable biomass feedstock derived from fermentation processes.

In addition, the Consortium intends to reach:

- Electrical efficiencies of more than 60% and total thermal efficiencies of more than 90% at base load conditions;
- An operational flexibility ranging from 25% to 100% electric power;
- Emission levels not to exceed 10 ppm NOx and 20 ppm CO (at 15% vol. residual oxygen);
- Possibility to use biogas with methane contents varying from 40-75%;
- An internal rate of return (IRR) of the system of higher than 15% (over a 20 years period).
- The output of the demonstration system will be between 15 and 30 kW of electrical power.

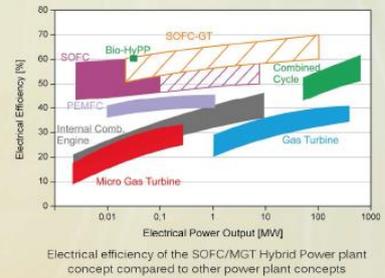


Figure 2: Bio-HyPP Tri Fold Leaflet Back





2.2 Project Poster

A Bio-HyPP project poster has been designed in order to be used for dissemination and have a universal representation of the project for events and workshops. The poster can be downloaded from the internet by the public and by the project partners through the Bio-HyPP website. The poster is useful for events and simple representation of the project as a whole at events. The poster is shown in Figure 3.



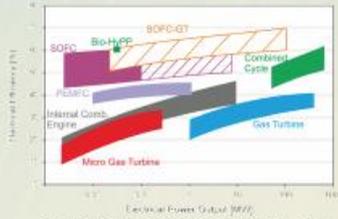


Bio-HyPP - Biogas-fired Combined Hybrid Heat and Power Plant

www.bio-hypp.eu



The Bio-HyPP project goal is the development and realization of a full-scale technology demonstrator of a Hybrid Power Plant in a lab environment suitable for gaseous sustainable biomass feedstock derived from fermentation processes. The output of the demonstration system will be between 15 and 30 kWe.

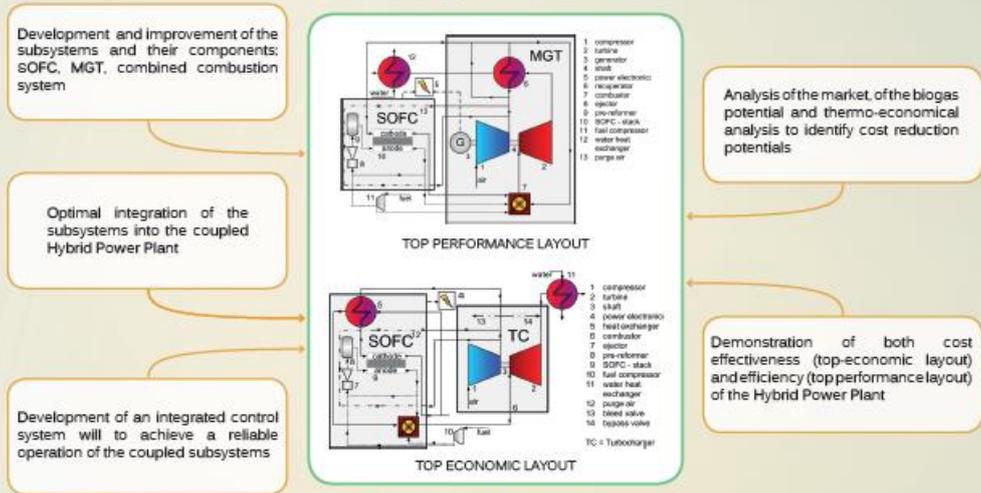


Electrical efficiency of the SOFC/MGT Hybrid Power plant concept compared to other power plant concepts

The Bio-HyPP CONCEPT

The Bio-HyPP system is a hybrid power plant system - a combination of solid oxide fuel cells (SOFC) and a micro gas turbine (MGT), highly-efficient, highly load- and fuel-flexible CHP system with lowest emission. It will help reach the goals of improving the efficiency of combined heat and power systems, widen the biomass feedstock base and increase operational flexibility.

The Bio-HyPP APPROACH



Project Objectives

- Electrical efficiencies of more than 60% and total thermal efficiencies of more than 90%;
- Operational flexibility ranging from 25% to 100% electric power;
- Emission levels not to exceed 10 ppm NOx and 20 ppm CO (at 15% vol. residual oxygen);
- Possibility to use biogas with methane contents varying from 40-75%;
- An internal rate of return (IRR) of the system higher than 15% (over a 20 year period).

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The Bio-HyPP project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 641073

Figure 3: Bio-HyPP Poster





3 Conclusions

The aim of this document, which constitutes deliverable D5.3 "Leaflet and poster of the project", is to present the preliminary dissemination material that has been prepared in these first months of the Bio-HyPP project in order to define the identity of the project.

