Minutes of MGT Combustion Meeting

11 December 2015, ETN office, Teleconference

Attendees:

Ambra Giovanelli	Universita Roma tre
Hamidreza Darabhkani	Cranfield University
Andreas Huber	DLR
Ignacio Lescano	ETN
Ugo Simeoni	ETN
Ward de Paepe	Vrije Universiteit Brussel
Luca Ratto	UNIGE

1. Welcome and Introduction

I. Lescano opened the meeting and welcomed the participants. He introduced the combustion document created by A. Huber based on the input of the working group members and presented the main topics for discussion.

2. Renaming the Working Group

I. Lescano proposed to change the name of the working group from Fuel Flexibility to Combustion. He explained that when defined as Fuel Flexibility, some of the topics of the working group overlap System Integration working group. By changing the name and scope to Combustion, no topics related to cycle or system configuration would be considered within this working group. Additionally, the working group would be able to focus as well on emission reduction. The working group agreed on this.

3. Combustion Vision Document

A. Huber presented the MGT fuel flexibility document and reviewed the different sections. H. Darabkhani asked about CO2 emissions in MGT. A. Huber replied that CO2 emissions levels are directly related to the efficiency of the engine. In this context, the MGT would produce higher levels of CO2 than internal combustion engines. H. Darabkhani stated that as MGT are smaller systems, it would be easier to use CO2 capture membranes in those systems, making MGT more attractive for the CCS community. H. Darabkhani agreed to write some sentences on CO2.

H. Darabkhani presented the solid fuels section. He mentioned that it is challenging to include solid fuels in high pressure combustors and therefore it would be needed an external firing system with a recuperator. He suggested creating a full map of fuels, with all the spectrum of solid liquid and gaseous. A. Huber proposed also to consider a combustor after the heat exchanger to raise the temperature to the appropriate levels. This would allow to have higher electrical efficiency, as heat exchangers cannot raise the temperature to significantly high level. H. Darabkhani stated that external firing would provide higher possibilities of fuel flexibility.

I. Lescano asked for to shortlist the fuels, indicating a small amount of fuels that have an immediate interest in the industry and other fuels that have a longer term interest for the future. A. Huber offered to suggest a first shortlist.

A. Huber agreed to write some lines on gaseous emissions and H. Darabkhani agreed on writing a contribution on noise emissions.

4. Conclusions and next steps

It was agreed that the documents (Combustion Vision Document & Matrix and MGT Global Matrix) will be reviewed by the partners. In particular:

- Provide comments on the task descriptions and identify the interests of each organisation in the Combustion Matrix
- Provide comments on the main challenges addressed in the MGT Global Matrix
- Identify potentially missing challenges or tasks

This would allow having a second iteration reviewed by the partners in January 2016. A follow-up teleconference could be set early next year to finalise the document.

Annex I: Action list

Action Owner	Description	Deadline date
ETN	To share all the documents with the working groups	18th December 2015
H. Darabkhani	To provide comments on noise emission reduction	6th January 2016
A. Huber	To provide comments on gaseous emission reduction and to shortlist some fuels of short and long term interest	6th January 2016
All	To provide comments on the task descriptions. To provide comments on the main challenges addressed. To identify potentially missing challenges or tasks To complete the Combustion Matrix.	6th January 2016