ETN AM Teleconference

Thursday, 12 July 2018

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| **Name** | **Organisation** |
| **Present** | |
| Massimiliano Cecconi | BHGE |
| Steve Nardone | ENGIE |
| Stefano Sigali | ENEL |
| Iarno Brunetti | ENEL |
| Simon Jones | HiETA Technologies |
| Vladimir Navrotsky | Siemens |
| Josh Kimmel | Solar Turbines |
| Ferenc Pankotai | Solar Turbines |
| Charles Soothill | Sulzer |
| Ugo Simeoni | ETN |
| Valentin Moens | ETN |

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# Introduction

U. Simeoni opened the teleconference and welcomed the participants. He recalled the context of the last teleconference where participants agreed suggesting their topics of interest where cooperation would be useful within this Working Group.

U. Simeoni invited Enel to present their topics of interest, as new member of the WG. S. Sigali explained that they would focus their interest on three topics: materials used and their properties, extent of the capabilities on AM parts, advanced uses of AM for advanced components (e.g. embedded sensors), including high temperature certification. In the short term, their focus is on the selection of the most appropriate material(s) to manufacture parts, while in the long term, they are open to new collaborations on various topics.

# Suggested topics

U. Simeoni presented the topics collected and highlighted that all the topics submitted by the members will be taken into consideration. However, in order to have a more focus approach, he proposed to classify the topics in four main categories: 1) AM Equipment / Process, 2) Roadmap 2030, 3) Advanced materials for AM H2020 call, 4) Product quality / control. See presentation below for more details.



## AM Equimpment / Process Quality

U. Simeoni started this topic by reminding the suggestion from Ron van Gestel during the last teleconference to create a database of existing equipment and their parameters. Several participants stated that such databases already exist and the ETN database should contain information not covered in other databases.

Indeed, J. Oakey stated that the database should not be the main concern but how well the quality of parts is defined with regards to cost and lifetime: measuring the performance of several equipment on commonly manufactured parts would be a good start. S. Jones suggested that to reach this objective, machine manufacturers could be involved at some point to provide information on roughness and repeatability.

**Action**: R. van Gestel to start the AM database, and evaluate the parameters of interest to collect.

## Roadmap 2030

F. Pankotai explained that two detailed roadmaps on materials and technology have already been done and could be shared within the WG. U. Simeoni asked whether an ETN AM roadmap would be useful to push for research programmes funded by the EU. J. Oakey stated that a specific EU or US roadmap wouldn’t have a high impact on EU research programmes. He agreed to look into documents shared by the EU Commission to have a better understanding on their expectations related to AM roadmaps.

**Action**: F. Pankotai to provide the two AM roadmaps.

**Action**: J. Oakey to check documents shared by the EU Commission in relation to roadmaps.

## Advanced Materials for AM H2020 call

U. Simeoni reminded that an H2020 call focusing on advanced materials for AM is open and that if there is an interest among the members, ETN could set up a consortium. However, he highlighted that the TRL of the call is between 4 and 6, which may not be in line with the idea discussed in the WG so far.

J. Oakey explained that within this call, the EU expects actions in more than one area, e.g. not only turbines. Additive Manufacturing is present in several sectors and the proposal should clearly highlight the interconnection with the other sectors. He underlined the importance of how the topic is presented in the proposal, given that a specific focus is needed to reach the correct TRL level (e.g. the performance of the machine, or of the parts made from it). Having in mind which industries should join the proposal is important as well.

J. Oakey commented that all topics taken into account for the proposal need to be grouped under a model including also the economical point of view (including the roadmap with the usage of resources, jobs, economics, etc…), which would then become an additional topic to focus on.

M. Cecconi suggested to go through various parameters (like temperature to reach, stress levels, cooling capacities, etc.) in order to set the requirements for the new material.

**Action**: M. Cecconi to prepare a list of the requirements that the new material should meet.

# Conclusions and next steps

U. Simeoni suggested to keep the focus for the moment on the three main topics listed above and to discuss the product quality during the next call. He also ensured that all the topics submitted will be properly discussed within the Working Group.

It was agreed that the next teleconference would be held on the second half of August, ETN will send a doodle with the potential dates.

It was agreed to hold the next AM WG meeting on 12 October 2018, in conjunction with the IGTC-18.

**Action:** ETN to set up a teleconference in August 2018.

**Action:** ETN to organise the AM WG meeting on 12 October 2018.

# Actions list

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| **No** | **New Actions** | **Resp.** | **Deadline** |
| 1 | To start the AM database, and evaluate the parameters of interest to collect. | R. van Gestel | 17 August 2018 |
| 2 | To provide the two AM roadmaps. | F. Pankotai | 17 August 2018 |
| 3 | To check documents shared by the EU Commission in relation to roadmaps. | J. Oakey | 17 August 2018 |
| 4 | To prepare a list of the requirements that the new material should meet. | M. Cecconi | 17 August 2018 |
| 5 | To set up a teleconference in August 2018. | ETN | 23 July 2018 |
| 6 | To organise the AM WG meeting on 12 October 2018. | ETN | October 2018 |