

## Consortium Material technology for thermal energy processes – minutes board meeting no 4/16

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| <b>Date</b>         | December 7, 13.00-15.00                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                    |
| <b>Place</b>        | Chalmers, Gothenburg                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                    |
| <b>Participants</b> | Erik Skog (chair)<br>Thomas Norman<br>Anna Jonasson<br>Søren Aakjær Jensen<br>Dilip Chandrasekaran<br>Bo Jönsson<br>Helena Oskarsson<br>Annika Stålenheim<br>Jan-Erik Svensson<br>Rikard Norling<br>Bertil Wahlund (secr.)                                                                                                                                      | Erik Skog AB<br>B&W Vølund<br>E.ON Värme Sverige<br>Dong Energy<br>Sandvik Heating Technology<br>Sandvik Heating Technology<br>Siemens<br>Vattenfall<br>Chalmers<br>Swerea KIMAB<br>Energiforsk                                    |
| <b>Prevented</b>    | Christoph Gruber<br>Sebastian Kaiser<br>Edgardo Coda<br>Jouni Mahanen<br>Lars Mikkelsen<br>Eva-Katrin Lindman<br>Jukka Meskanen<br>Peter Emvin<br>Matti Huhtakangas<br>Jesper Ederth<br>Marie-Aude Porter<br>Johan Moverare<br>Pamela Henderson                                                                                                                 | Andritz<br>Andritz<br>Amec Foster Wheeler<br>Amec Foster Wheeler<br>B&W Vølund<br>Fortum värme<br>Fortum<br>GKN Aerospace<br>MH Engineering<br>Sandvik Materials Technology<br>Siemens<br>Linköpings universitet<br>Vattenfall/KTH |
| <b>Distribution</b> | participants, prevented and<br>Sven Andersson<br>Per Kallner<br>Andreas Sundlöf<br>Erik Westman<br>Henrik Lindståhl<br>Mikael Fransson<br>Ulf Hagman<br>Claes Sommansson<br>Erika Antonsson<br>Toni Holkko<br>Lucas Enström<br>Ulf Lindqvist<br>Jesper Baaring<br>Johan Thelander<br>Magnus Eriksson<br>Lars Hammar<br>Patrik Schneider<br>Erik Thornström      |                                                                                                                                                                                                                                    |
|                     | B&W Vølund/Götaverken<br>Vattenfall<br>Söderenergi<br>Söderenergi<br>Tekniska verken i Linköping AB<br>Tekniska verken i Linköping AB<br>Göteborg Energi AB<br>Göteborg Energi AB<br>Göteborg Energi AB<br>Gävle Energi<br>Gävle Energi<br>Jämtkraft AB<br>Öresundskraft<br>Karlstads Energi AB<br>Mälarenergi AB<br>Kraftringen<br>Kraftringen<br>Swede energy |                                                                                                                                                                                                                                    |

## **1 Agenda**

The distributed agenda was approved.

## **2 Person to approve minutes**

HO, Siemens, was elected to approve minutes (next present person/company on participants list).

## **3 Minutes from board meeting 3/16**

The minutes from board meeting 3/16 was approved without comments.

## **4 Notifications**

### **4.1 Coming dissertations**

At the new web site, coming dissertations and conferences will be posted. The board members are recommended to send information to BW.

#### Upcoming dissertations

Erik Larsson, doctoral dissertation, January 20, Chalmers/HTC, active in the projects KME-709, KME-711, KME-720

#### Recently defended dissertations:

Annika Talus, lic thesis, December 2 (or 3), KTH

### **4.2 Coming conferences**

5<sup>th</sup> Central European Biomass Conference (CEBC), World Bioenergy Day, 18th and 20th January 2017, Graz, Austria,  
<http://www.worldbioenergy.org/node/1003>

10<sup>th</sup> International Conference on Microscopy of Oxidation, April 3-5 2017, Loughborough University, UK,  
<https://www.liverpool.ac.uk/engineering/events/microscopy-of-oxidation/>

25<sup>th</sup> European Biomass Conference and Exhibition (EUBCE), June 12-15, 2017, Stockholm, Sweden, <http://www.eubce.com/home.html>

## **5 Follow up of project**

BW informed regarding status for the projects.

The projects KME-709, KME-711, KME-720 show some very promising results for Sandvik model alloys containing Chromium and Silicon (alumina forming FeCrAl alloys). Experiments in lab are performed in parallel to field exposures, which give important synergies and shorten the time from designing a model alloy until it is tested in field.

- KME-714, *Sulphur recirculation and improved material selection for high temperature corrosion abatement*. Installation of sulphur recirculation equipment is completed and has been up and running for two month. The plant has now two parallel lines with different environment. The planned exposures and tests for corrosion memory effects are ongoing.

- KME-720, *The effect of increased fractions of waste wood on water wall- and superheater corrosion* show some deviations. According to plan, probes should have been inserted in the fins in the water wall during the summer revision 2016. Due to uncertain erosion risks the tests were stopped on commercial basis. Discussions are ongoing on how to solve the issue. If the risks can be handled, the probes can be inserted by summer revision 2017. If the probes are inserted 2017, the exposure times and time for analysis will be short and needs to be optimized so that the project can reach their goals.

Project status reports in appendix 1.

## 6 Budget

BW showed the updated budget follow. Follow up is made of funds used, requested cash and reported in-kind.

BW reminded about the reporting dates for industry in-kind:

- September 30 for the period January-June
- March 31 the following year for the period July-December

Discussions re-initiated with SEA regarding if the remaining 567 kSEK could be used for a synthesis report. SEA give positive signals but needs a more elaborated proposal/ToR before they could give any further answer.

Comments from board:

- The report should, as far as possible, include both the retrospective, current status and future.
  - o The report should be a research synthesis, with conclusions on what the research has achieved, but also identify research gaps.
  - o It should be highlighted that long-term research and collaboration are important aspects to be successful.
  - o Important to show what has been achieved during the 20 years, including the benefit and all good industry examples.
  - o The report should preferably also look forward to identify the future challenges and research needs.
- The work should be conducted during spring 2017 and finalised by summer.
- Proposal on title: *Material research for energy purposes*
- The work implies efforts and commitments from the stakeholders.
- Proposal on possible candidates to conduct the work: Ronny Nilsson, Sweco, together with material experts, for example John Nicholls and/or Marcel Somers at DTU.

Decision: **BW will continue the dialogue** and elaborates a short ToR.

## 7 The future of KME programme

BW reported from KME future group meetings, one meeting held with SEA September 21, and 5 internal meeting (protocol from four minuted meetings on KME web).

Basically, the role for KME is

- Stage 1. Before start of SEA's programmes, to give input and influence the programme content.
- Stage 2. When the SEA's programmes are ongoing, to generate and formulate industry relevant research projects, and to maintain the network.

At the future group's last meeting the focus was content and the KME programme description or "goal document" was elaborated which should be used to give input to SEA.

Comments from board:

- KME should be active in all three of SEA suggested programmes.
- The KME should work for elaborate input to SEA and KME board should be sender of the document.
- The boiler companies should be involved in the process to elaborate the programme description. ES and BW check with companies not represented in the future group, such as the boiler companies.
- All companies should give their input to programme description before next board meeting.
- Important to align research activities with the company internal strategic research activities.
- Time aspect (should be more flexible and not fixed to 5-10 yrs), height of innovation (small incremental improvements can be good/essential, and several small improvements give large improvements). Important to try to explain this to SEA.
- KME should focus on material related questions/problems, but important also to include process and system aspects (plant) with related material questions/problems.
- SEA might underestimate the complexity of material problems and questions.
- The ambition is to first involve the current KME companies and then try to expand to new companies.
- Dialogue with the other related programmes, such as SEBRA and Fjärrsyn.
- KME should try to arrange a meeting with the SEA after board meeting in March. (HTC will have a meeting with SEA in February)
- Time plan:
  - to have the KME programme description and goal document ready to board meeting in March
  - try to obtain a meeting with the SEA after board meeting in March to give input on research topics and goals.

Actions:

- **All KME stakeholders initiate** their own work to identify and formulate research areas and research question of interest and give input to BW before next board meeting.
- **ES and BW contact** the stakeholders not represented in the KME future group, for example boiler manufacturing companies.

## **8 Programme conference HTC/KME 2017**

The conference will be held in Gothenburg, at Lindholmen conference centre, **March 21-22**. Lars-Gunnar/HTC and BW will elaborate the programme and send out an invitation before the seasons holiday. Key note speeches can be made by HTC advisory committee, Professor John Nicholls and Mathias Galetz, DECHEMA.

## **9 Others**

### **9.1 Celebration of KME 20 years**

KME is turning 20 years 2017, and the board's opinion was that it should be celebrated.

- Half day presentations including a dinner.
- Coupled to the synthesis, retrospect on what has been achieved by KME
- Suggestions of speakers to be invited: Ulf Norberg (Arvidsson), Erik Skog and the Swedish Energy Agency.
- To be held early autumn 2017, Stockholm.

## **10 Next meetings**

2017 meetings and conference:

- Telephone meeting, March 8, 9-11
- Physical meeting in May 9, Stockholm, 13-15
- Telephone meeting in September/October
- Physical meeting in November/December
  
- KME/HTC programme conference 2017, 21-22 March, Gothenburg

Minutes by

Bertil Wahlund

Minutes approval

Helena Oskarsson, Siemens

Minutes approval

Erik Skog, chairperson