

## MINUTES OF THE BOARD MEETING

### 6 JANUARY 2016, BRUSSELS, BELGIUM

#### **Present:**

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|                                    |                         |
|------------------------------------|-------------------------|
| Bernard Quoix, President (BQ)      | Total                   |
| Robert Rijdsdijk (RR)              | Shell                   |
| Catherine Goy, Vice President (CG) | Uniper                  |
| Niko Cornelis (NC)                 | Engie                   |
| Herwart Hönen, Treasurer (HH)      | RWTH Aachen University  |
| Gary Lock (GL)                     | Frazer Nash Consultancy |
| Giovanni Cerri (GC)                | University Roma TRE     |
| Andy Williams (AW)                 | Chromalloy              |
| Thomas Volks (TV)                  | MTU                     |
| Christer Björkqvist (CB)           | ETN                     |
| Dominique Cornut (DC)              | ETN                     |
| Ugo Simeoni (US)                   | ETN                     |

#### **Apologies:**

|                       |                      |
|-----------------------|----------------------|
| Pericles Pilidis (PP) | Cranfield University |
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#### **Content:**

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1. Welcome and opening of the Board meeting
2. Review and approval of the MoM, 1 July 2015
3. Review and report of actions list from the MoM, 1 July 2015
4. ETN Activities Update
5. Feedback from the Madrid User Meeting
6. Prioritisation/Execution Plan
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8. User Conferences
9. Upcoming ETN meetings
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10. Upcoming ETN events
11. Closing of the Board meeting

Annex 1: Review of action lists from previous Board meetings

## **1. Welcome and opening of the Board meeting**

B. Quoix opened the meeting and welcomed the Board members. P. Pilidis sent his apologies for not being able to join the Board meeting.

## **2. Review and approval of the MoM, 1 July 2015**

The Board made the following comment to the July minutes of meeting.

### **Page 4: Intellectual property**

As ETN is now going global, the Board expressed its concern on intellectual property issues and recommended the ETN office to get some advices on how to share technical information around the world. G. Lock stated that it is possible to share information within Europe, but outside Europe this information is subject to export control. G. Lock stated that ETN might need a license for certain type of information. C. Björkqvist said that ETN has nothing on its platform now that is sensitive technical information, but ensured that he will discuss this concern at the upcoming Project Board meeting, set to take place on 28-29 January in the ETN office.

**Action:** CB to discuss with the Project Board members about intellectual property outside Europe.

The Board unanimously approved the July Board meeting minutes.

## **3. Review and report of actions list from the MoM, 1 July 2015**

The status of all actions is updated in the Annex. The following comments were added by the Board:

On action 3, the Board agreed that the focus should be on the Middle East and South East Asia. Conoco Philips and Petronas should be added to the list of potential Affiliate members. The Board also agreed to send these companies the updated Membership Information Package by email.

On action 6, C. Björkqvist explained that he will update the Membership Information Package before the Annual General Meeting in April and said that a section will be dedicated to Affiliate members. He also reported that an ETN introduction presentation had been developed and an email letter dedicated to attract new Affiliate members. Further he stated that he would like to update these documents with information on the planned User meetings (LM2500 and RB211) before it is circulated to the Board for its approval.

**Action:** CB to update the package to attract and retain affiliate members and send it to the Board for its approval.

## **4. ETN Activities Update**

The Board took note of the Activities Update, which was circulated ahead of the meeting by the ETN office.

C. Björkqvist provided more details on his participation to the IGTC in Tokyo in November 2015. He reported that almost 600 participants joined the conference and that 270 papers were received (the conference's committee rejected 50% of the abstracts). He also met with high representatives of MHI and reported that he would meet with MHI's Head of Technology

in London in January in order to discuss how they could become more involved in ETN activities. B. Quoix stated that the R&D activities at Mitsubishi and Hitachi are still done separately and said that we could have Hitachi as a separate member of ETN (in addition to MHPS) as they are developing their own gas turbines. N. Cornelis mentioned that Engie has four or five MHPS engines but as they are not running a lot, they don't have many issues. C. Goy said that Uniper has several engines also. B. Quoix suggested investigating how many Mitsubishi engines are in operation in Europe.

On membership, C. Björkqvist mentioned that Michael Ladwig (Alstom) suggested to merged both GE memberships (GE Oil & Gas and GE Power & Water). The Board objected to this as they are two different entities and it would be hard for one contact person to manage both organisations. For Siemens, the Board decided to monitor the situation and decide what to do at a later stage as they do not know yet how they separate their gas turbines entities. A. Williams suggested talking to Uwe Kaltwasser at Siemens to have an update on the situation.

**Action:** CB to meet with MHI's Head of Technology in London in order to discuss how MHI could become more involved in ETN activities.

**Action:** BQ to contact Hitachi to get them as a separate member (in addition to MHPS) and to learn how many Mitsubishi engines they have in Europe.

**Action:** CB to talk to Uwe Kaltwasser to learn how Siemens organises its gas turbine entities.

## **5. Feedback from the Madrid User Meeting**

C. Björkqvist reported that the minutes of the User meeting in Madrid were circulated to the meeting participants. He stated that many issues were listed in the minutes but internally, we need to focus on a few that we would prioritise in order to maximise the results. B. Quoix and R. Rijsdijk had met prior the Board meeting in order to review these issues and decided that the LM2500 engine, the Condition Based Monitoring project and the Air Filtration project were the three main priorities for Oil & Gas users. C. Goy and N. Cornelis added that cost and reliability as well as creating an ETN standard for repairs would be the main priorities for the power generation companies. C. Goy added that there was some interest at the last Workshop in Madrid to make a standardisation for repairs and that DGTA started the process to develop one several years ago. However, after Andre Mom's retirement from DGTA the project was never finalised. A. Williams will follow up with Ron Van Gestel (Chromalloy).

C. Björkqvist mentioned that DGTA had expressed interest for a wider cooperation with ETN and the Board agreed that a standardisation for repairs would be a topic which they could push forward and bring results to ETN.

H. Hönen stated that occasionally, the projects are not advancing as they should as the industry does not provide feedback to the issues that are presented. B. Quoix proposed to receive a summary report during Board meetings in order to know if Board members (especially users) need to push on some outstanding actions. The Board therefore decided to have a short update on ETN's on-going projects at each Board meeting and it was agreed that U. Simeoni would make such summary for future meetings.

**Action:** AW to follow up with Ron Van Gestel (Chromalloy) regarding the previous DGTA repair standardisation project.

**Action:** US to prepare a summary report on ETN's on-going projects for each Board meeting.

## **6. Prioritisation/Execution Plan**

Board members agreed to focus on the following topics:

### **On-going projects:**

- Air Filtration Standardisation
- Exhaust Systems Standardisation
- Micro Gas Turbine Project: Policy session at the EU Sustainable Energy Week and creation of a Technical Summary
- R&D Recommendation Report 2016: The first draft would be done by the end of January and the final report will be presented at the AGM and Workshop in Prague
- EU-funded project: OMSoP
- User e-questionnaire: Get more information on the issues reported with a follow-up questionnaire

### **New initiatives:**

- Organisation of user meetings (LM2500 and RB211)
- Air Filtration Independent Testing
- Condition Based Monitoring Project
- Repair Standardisation Project
- EU-funded project: PolyBioGT: Proposal to be submitted to the European Commission by 16 February 2016

Board members stated that a successful future of ETN is partially based on recruitments of new members and that we should focus on getting more users involved on the ETN platform. It was also agreed to involve the policy departments of user companies based in Brussels in order to align our messages on the future role of gas turbine technology.

**Action:** ETN office to contact policy departments of user companies based in Brussels to align messages on the future role of gas turbine technology.

**Action:** ETN office to incorporate the prioritisation plan into the ETN strategy for 2016-2017.

## **7. ETN Finances**

H. Hönen presented the current state of ETN finances, the planned budget for 2016 and the projections for 2017. He reported that the year-end expenses were 513.235,00 euros compared to the budget of 537.200,00 euros, which resulted in a balance of 24.596,00 euros. He also explained that ETN was able to get 64.150,00 euros more than previously expected from the H2-IGCC project and more membership income than forecasted, therefore the year 2015 would end with a positive result of around 110.000,00 euros. However, as a result of no further expected income from EU projects in 2016 the surplus from 2015 would be needed as a provision for 2016 and 2017 to avoid a negative balance.

C. Björkqvist informed the Board that one project proposal is planned to be submitted on the Horizon 2020 calls (PolyBioGT) in February, however the income and the costs have not been taken into account in the planned budget for 2016 as it is uncertain if it will be funded.

## **8. User Conference**

The Board agreed that a user conference on the LM2500 engine should be organised by ETN and that the structure of the meeting should be the following:

### **Day 1: User Sessions**

The first day would be dedicated to the users.

### **Day 2: Service Provider Sessions**

This second day would be dedicated to service providers until the afternoon coffee break. At 16.00, ETN would allow GE to give an introduction presentation on their latest updates before the GE sponsored dinner event.

### **Day 3: GE sessions**

The third day would be dedicated to technical GE presentations and discussions with the user community.

Both R. Rijdsdijk and B. Quoix agreed to appoint two experts each for the planning of the user conference. These experts would also be present at the GE meeting in Florence on 3 February in order to discuss the main technical topics to address at the ETN LM2500 user conference. It was agreed that a list of issues and areas to address would be sent to both GE and the independent service providers prior to the conference, in order for them to prepare adequately and bring more detailed solutions to the table.

R. Rijdsdijk also confirmed that a room had been secured at Shell's offices in Amsterdam on 31 May, 1-2 June 2016. It was agreed that there would be two fees for the participants:

- ETN members: 580 euro
- Non-ETN members: 980 euro

The Board decided to organise at least one user meeting every year.

## **9. Upcoming ETN meetings**

### **a) Annual General Meeting (AGM)**

C. Björkqvist informed the Board about the topics of the next AGM:

- ETN activities report 2015-2016
- Future ETN strategy and activities
- Financial report and budget
- ETN's new R&D Recommendation Report 2016
- Election for the new ETN Board 2016-2018
- EU energy policy updates
- On-going activities in ETN Technical Committees and Project Groups

For the ETN Workshop, C. Björkqvist reported that the TC Chairs were coming very late with the minutes of their session and therefore, the ETN office had to wait to publish the Workshop's report. Different support possibilities were discussed to avoid such delays. As it requires someone who both understand the topic and that can take minutes it was proposed to bring young engineers to each TC. It was decided that the following people would bring a young professional for the AGM and Workshop in April in order to take the minutes of meeting:

- B. Quoix
- R. Rijdsdijk

- G. Lock (to be confirmed)
- T. Volks (to be confirmed)
- C. Björkqvist

#### b) International Gas Turbine Conference 2016

The call for papers is now closed and we received 74 abstracts (28 to be selected). The Conference Advisory Board and the reviewers are currently evaluating the abstracts and will meet on 27 January to select the best ones. As the ETN office received good feedback with regards to the set-up of the conference, it was decided to use the same format for IGTC-16. On the IGTC sessions, the Board made the following recommendations:

#### **First session: International policy and market outlook**

It was agreed that we should invite Mechthild Wörsdörfer from the European Commission again.

#### **Second session: Development needs for utilities and oil & gas operators for their current and future gas turbine fleet**

C. Björkqvist asked the Board about any specific users that we should target. It was decided to target the following organisation:

- Petronas (Malaysian): B. Quoix will provide the contact details of the person to contact
- Exxon Mobil (US)
- Conoco Philips (US)
- Pemex (Mexico)
- TGN (Argentina)
- SSE (UK): Contact James Bowers/Ronnie Glenn to know who we should contact
- BP (UK)
- Anadarko (US)
- Talisman Energy (Canada)

R. Rijdsdijk agreed to chair the session and A. Williams agreed to moderate the session.

#### **Third session: National/regional gas turbine markets**

C. Björkqvist reported that Richard Dennis (US Department of Energy) already said that he would be available. In the Middle East, the Board suggested to invite representatives from the following organisations:

- DEWA
- Dubai Aluminium (DUBAL)
- Tokyo Gas

#### **Fourth session: OEM session**

It was agreed to invite the following organisations to the IGTC-16 OEM panel session: Siemens, MHPS, GE Power, GE Oil & Gas, Ansaldo Energia, Solar Turbines.

For the Dinner Debate, taking place the day before the IGTC, C. Björkqvist suggested to only organise it if the European Commission is prepared to arrange this as a joint event. The Board welcomed this idea. C. Björkqvist will approach Mechthild Wörsdörfer, from the European Commission.

**Action:** CB to follow-up with Mechthild Wörsdörfer, EC in order to get her feedback from the IGTC and to propose a joint Dinner Debate in 2016.

## **10. Upcoming ETN events**

The Board agreed to meet in the morning of 26 April 2016, prior the AGM and Workshop (8:00-12:00), in Prague, Czech Republic. They also asked the ETN office to send a Doodle in order to schedule another Board meeting in the last week of June 2016.

### **ETN Events**

| <b>Name of Meeting</b>                       | <b>Date</b>   | <b>Location</b> |
|--|---|-----------------|
| CAB meeting                                  | 27 January 2016   | Brussels        |
| Project Board and Chairpersons (TCs) Meeting | 28-29 January 2016  | Brussels        |
| Board Meeting                                | 26 April 2016 (8:00-12:00)  | Prague          |
| LM2500 User Conference                       | 31 May-2 June 2016  | Amsterdam       |
| Board Meeting                                | June 2016 (A doodle will be circulated for the last week of June) | Brussels        |
| ETN High Level User Meeting                  | 11 October 2016   | Brussels        |
| International Gas Turbine Conference         | 12-13 October 2016  | Brussels        |

## **11. Closing of the Board meeting**

B. Quoix closed the Board meeting.

## **ACTION LIST**

| <b>No</b> | <b>New Actions</b>   | <b>Resp.</b> | <b>Date</b> |
|-----------|--|--------------|-------------|
| 1         | NC to send the results of the Study on <i>Consulting on Guidelines for Preservation of CCGT</i> to RR.                                       | NC           | Feb 2016    |
| 2         | BQ to follow up with Dolphin on ETN membership opportunities.  | BQ           | Feb 2016    |
| 3         | CG and PP to have a closer look into ORAP's databases in order to better understand if a partnership with ORAP would be beneficial for ETN.  | CG, PP       | Apr 2016    |
| 4         | TV to discuss with Bo Pedersen of Maersk about ETN membership.   | TV           | Feb 2016    |
| 5         | CB to discuss with the Project Board members about intellectual property outside Europe.   | CB           | Jan 2016    |
| 6         | CB to update the package to attract and retain affiliate members and send it to the Board for its approval.                                  | CB           | Apr 2016    |
| 7         | CB to meet with MHI's Head of Technology in London in order to discuss how MHI could become more involved in ETN activities.                 | CB           | Apr 2016    |
| 8         | BQ to contact Hitachi to get them as a separate member (in addition to MHPS) and to learn how many Mitsubishi engines they have in Europe.   | BQ           | Apr 2016    |
| 9         | CB to talk to Uwe Kaltwasser to learn how Siemens organises its gas turbine entities.  | CB           | Apr 2016    |
| 10        | AW to follow up with Ron Van Gestel (Chromalloy) regarding the previous DGTA repair standardisation project.                                 | AW           | Apr 2016    |
| 11        | US to prepare a summary report on ETN's on-going projects for each Board meeting.  | US           | Apr 2016    |
| 12        | ETN office to contact policy departments of user companies based in Brussels to align messages on the future role of gas turbine technology. | CB           | Apr 2016    |
| 13        | ETN office to incorporate the prioritisation plan into the ETN strategy for 2016-2017.   | CB           | Apr 2016    |
| 14        | CB to follow-up with Mechthild Wörsdörfer, EC in order to get her feedback from the IGTC and to propose a joint Dinner Debate in 2016.       | CB           | Apr 2016    |



**ANNEX 1****STATUS OF ACTION LIST (from MoM July Board meeting, Brussels, Belgium)**

| <b>No</b> | <b>Actions</b>  | <b>Outcome/Next Action</b> | <b>Resp.</b>   |
|-----------|---|----------------------------|----------------|
| 1         | NC to send the results of the Study on <i>Consulting on Guidelines for Preservation of CCGT</i> to RR.  | Moved (main action list)   | NC             |
| 2         | CB to set-up a teleconference call to discuss a potential process for the development of common guidelines for the preservation of CCGT with interested users.  | Delete                     | CB             |
| 3         | CB to make a list of potential users in key regions outside Europe (Africa, Middle East, South America and Asia)  | On-going                   | CB             |
| 4         | CB to follow-up with Alvaros Barcello, GKN Aerospace about membership opportunities.  | On-going                   | CB             |
| 5         | CB to create a document comparing the rights of the Full Members and Affiliate Members.   | Done                       | CB             |
| 6         | CB to draft a package to attract and retain Affiliate Members.  | Moved (main action list)   | CB             |
| 7         | Board to review the Affiliate Members package developed by the ETN office.  | On-going                   | Board          |
| 8         | CG and NC to set-up a meeting between them to review the technical issues under the theme “Flexibility” and prepare a proposed way forward based on a staircase model described by RR. They should also select two engines to focus on as well as discuss the set-up process for an exchange of knowledge related to the development of common guidelines for preservation of CCGT based on best practises. | Done                       | CG, NC         |
| 9         | BQ and RR to set-up a two-day meeting between selected experts from Shell and Total to review and identify the technical issues under the theme “Cost” and prepare a proposed way forward based on a staircase model described by RR.   | Done                       | BQ, RR         |
| 10        | CB to merge the two themes into an attractive draft package to be reviewed by the ETN Board before being presented to the ETN user community.   | Done                       | CB             |
| 11        | BQ, RR, NC and CG to provide input to the invitation/agenda which would be sent ahead of the user meeting in order to have clear meeting objectives and attract a high number of users.   | Done                       | BQ, RR, NC, CG |
| 12        | CB to draft a preliminary invitation and send by the end of July a “save the date” pre-invitation for the user meeting.   | Done                       | CB             |
| 13        | BQ to invite MHI to become a gold sponsor for IGTC-16.  | Done                       | BQ             |

**PENDING ACTION LIST (from MoM December 2014 Board meeting)**

| No | Actions   | Outcome / Next action  | Resp.             |
|----|---|--|-------------------|
| 1  | CB to spread ETN reserves into different banks.   | Done. Two accounts have been opened (KBC and Banca Monte Paschi)                               | CB                |
| 2  | TV to meet with Bo Pedersen of Maersk to discuss ETN membership.  | Moved (main action list)   | TV                |
| 3  | CG to discuss membership opportunities with RWE npower.   | On-going CG stated that she will meet a representative in January and will follow-up with him. | CG                |
| 4  | AW to contact Rolls-Royce Wood Group to discuss membership opportunities.   | On-going AW to contact them to become a member.  | AW                |
| 5  | CB to contact MRO within the GKN Aerospace group to discuss membership opportunities.   | On-going   | CB                |
| 6  | CB to follow-up with Mechthild Wörsdörfer, EC in order to get her feedback from the IGTC and to propose a joint Dinner Debate in 2016.  | Moved (main action list)   | CB                |
| 7  | CB to contact Maria Martin from EPRI to ask for a list of user companies in South America.  | Postponed  | CB                |
| 8  | CB to follow-up with Petrobras about membership opportunities.  | Postponed Marcello Accorsi is retiring; we will wait for the new contact person.               | CB                |
| 9  | ETN office to follow-up with Pierre Brousse, Solar with an indicative price for sponsorship (AGM)   | Done   | ETN               |
| 10 | CB to follow-up with EPRI on potential members that we could contact and to verify if they are going to the Petrobras meeting in August.  | Done   | CB                |
| 11 | CB together with the Project Board to go through the evaluation report of EU proposal, write a letter to the EC and create a template for EU-funded project proposals. The Board agreed that H. Hönen should supervise this activity. | Done   | CB, Project Board |
| 12 | CB to follow up with Montaser Zamzam from ADNOC to discuss membership fee of umbrella organisations depending on the number of companies they represent.  | On-going   | CB                |
| 13 | CB to include a new section on umbrella user organisations in ETN's Internal Rules.   | Done   | CB                |
| 14 | BQ to follow up with Dolphin on ETN membership opportunities.   | Moved (main action list)   | BQ                |
| 15 | CG and PP to have a closer look into ORAP's databases in order to better understand if a partnership with ORAP would be beneficial for ETN.   | Moved (main action list)   | CG, PP            |
| 16 | CB to follow-up with Yrjö Komokallio on the potential merging of ETN and GTUsers.com's databases.   | On-going   | CB                |