

**MINUTES OF THE BOARD MEETING
THE HAGUE, HOLLAND, 8 FEBRUARY 2012****Present:**

Bernard Quoix, President (BQ)	TOTAL
Catherine Goy, Vice President (CG)	E.ON UK
Andy Williams (AW)	Wood Group
Gary Lock (GL)	Frazer Nash Consultancy
Giovanni Cerri (GC)	University Roma TRE
Herwart Hönen, Treasurer (HH)	RWTH Aachen
Jacques Maunand (JM)	EDF
Jonathan Clarke (JC)	Shell
Uwe Kaltwasser (UK)	MTU
Christer Björkqvist (CB)	ETN
Julie Linde Kjeldsen (JK)	ETN

Invited Observers:

André Mom, President Emeritus (AM)	ETN
Robert Rijdsdijk (RR)	Shell

Apologies:

Pericles Pilidis (PP)	Cranfield University
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Content:

1. Welcome
2. Review and approval of the MoM Pau, France December 2011
3. Review of Action List from the MoM Pau, France December 2011
4. Review of ETN Activities Update
5. ETN Budget
6. ETN Internal Structure and Project Development
7. ETN Initiatives and Projects
8. Implementation of New Internal Structure
9. ETN Newsletters, and the Young Engineers Forum
10. IGTC-12 Program, Speakers and Questions
11. Upcoming ETN Activities 2011
12. Closing of the Board Meeting

Annex: Review of Action list from previous Board meeting (Pau, France December 2011)

1. Welcome

B. Quoix opened the meeting and welcomed the Board members and the invited observer R. Rijdsdijk, Shell. P. Pilidis sent his apologies for not being able to join the Board meeting.

J. Clarke announced that he will, from 1 March 2012, take on a new role within Shell in Singapore, as the Enterprise Category Manager Rotating Equipment. The Board thanked him for his efforts and wished him the best for the future, after which they presented themselves to J. Clarke's replacement as Global Discipline Lead Rotating Equipment, R. Rijdsdijk.

2. Review and Approval of the MoM Pau, France December 2012

The Board unanimously approved the December 2011 Board Meeting minutes, following minor clarifications concerning membership goals for 2012.

3. Review of Action List from the MoM Pau, France December 2012

See Annex.

4. Review of ETN Activities Update

The Board took note of the ETN Activities Update, which was circulated ahead of the meeting. The following points were discussed further:

Gas Briefing Paper:

Following the conclusions of the 2010 High-Level User meeting hosted by ETN at the European Parliament, a paper on the benefits of a shift from coal to gas in power generation and applying Carbon Capture and Storage (CCS) to gas-fired power plants (over coal fired) is being developed. C. Björkqvist presented EuroGas' comments to the paper, which were incorporated into a shorter summary of the original paper. It was decided that A. Mom should review the content of the paper, and C. Goy would thereafter review the language of the paper.

J. Maunand pointed out that the message of the paper is not aligned to the EDF position on CCS, which argues that too much energy is used to store CO₂. He believed that the core message of the paper should be that the efficiency penalty is currently too high, and should be reduced. A. Mom pointed out that this is still in line with the paper, which argues that to meet the EU's climate goals for 2050 CCS has to be employed.

Action: AM, CG and JM to review content of Gas Briefing Paper.

ETN and Partnership and Conferences:

ETN has partnerships with various organisations and conferences, and aims to guide the ETN members by pointing to well-organised and potentially valuable events. While discussing these, the Board members called for a transparent strategy with regard to which events ETN is represented at, and how this contributes to the ETN vision. The Board members stressed the importance of ETN supporting events which are in line with ETN's own vision. Conferences that ETN attend should result in a report of the key points discussed at the event, as well as an overview of ETN's position.

Action: ETN to formulate a transparent strategy with regard to attendance of events where ETN is represented.

EPRI Meeting:

At the previous Board meeting in Pau, France, J. Maunand proposed setting up a meeting with the Electric Power Research Institute (EPRI), which is a non-profit US-based research organisation. The aim of the proposed meeting was discussed by the Board members, and it was concluded that it should be to clarify the activities of EPRI, as well as to find potential areas of future cooperation

(similar to current ETN partnerships with ASME and Pennwell). Moreover, the potential of an EPRI representative presenting at the IGTC-12, to give the American perspective on R&D, was discussed – it was agreed that while the focus of the Conference should be on Europe, it would be valuable to have an American perspective.

Action: J. Maunand to arrange meeting with EPRI in June 2012 when they are in Europe, and to attend it together with C. Björkqvist, to address partnership possibilities, and discuss their representation at the IGTC-12.

ETN Membership:

The Board members discussed potential new ETN members, and outstanding payment of ETN membership fees from 2011 and 2012.

CNRS are going to participate in the HYCOSOL project. In order to be allowed to do so, they have agreed to pay the outstanding payment from 2009 (plus additional charges) as well as the membership fee for 2012. The payment is currently being processed.

C. Björkqvist reported that no response from Turbocare had been received on sent –emails about membership.

B. Quoix announced that he had received confirmation from GE Energy with regard to the ETN membership for 2012, with Emmanuel Kerrand as the core contact person.

U. Kaltwasser reported that he is following up with Bo Petersen of Maersk with regard to ETN membership.

B. Quoix informed that he had received a positive indication from ExxonMobil regarding ETN membership but no further reaction since then.

A. Mom had talks with Gasunie with regard to the ETN Gas Briefing Paper which were very positive. However, when discussing potential ETN membership, with Enno Freese and Erwin Mollink, they were less forthcoming. R. Rijdsdijk offered that he could follow up with his contacts within Gasunie.

Action: C. Björkqvist to ensure that payment is received from CNRS.

Action: C. Björkqvist to write to Frits De Jong and Helge Reymann at Turbocare about ETN membership, and should copy in B. Quoix when doing so.

Action: U. Kaltwasser to follow up on progress of Maersk membership of ETN.

Action: B. Quoix to write to Mike Pepper at ExxonMobil about ETN membership.

Action: R. Rijdsdijk to write his contacts at Gasunie about ETN membership.

5. ETN Budget

H. Hönen presented the financial report of 2011, as well as the draft budget for 2012, both of which had been circulated to the Board ahead of the meeting. He reported that the cost had been kept within the budget, and thus the income was higher than expected, resulting in excess profits which will be added to the reserves. This was due to an increased membership income in 2011, as well as because the total amount of costs related to the H2-IGCC project had been approved by the EC, compared to the initially more conservative estimation.

With regard to the accumulated reserves it was decided that the 2012 budget should include a section for project development costs. Additional costs for the development of the new ETN website and cloud computing services should also be included into the 2012 budget. It was decided that H. Hönen and C. Björkqvist would make the suggested changes to the 2012 budget and prepare a new proposal to be circulated and approved by the Board prior to the AGM. Moreover, it was decided to divide the money into portions of 100.000 euro each and place it in different bank accounts in order to be safe if one bank will run into financial problems.

Action: H. Hönen and C Björkqvist to prepare an updated budget proposal to be circulated to the Board and to prepare a financial presentation for the AGM to be approved by the Board at the upcoming board meeting.

6. ETN Internal Structure and Project Development

ETN is currently in the process of developing and implementing a new internal structure and project development process. C. Björkqvist presented recent progress in the strategy development and the updated descriptive illustrations of the new structure were reviewed by the board.

ETN Internal Structure:

The ETN Internal Structure diagram was revised as shown below:



ETN Project Development process:

The Project Development funnel diagram led to an extensive discussion among the Board members with regard to the process of developing initiatives, and how they should be evaluated, given that they are being carried out in the name of ETN.

The importance of a transparent gate review was especially stressed, to ensure that each step of the project delivered and was considered worthwhile in itself, in case it was chosen to end the project prior to its ultimate goal.

It was debated whether there should be an external process, whereby the progress of the project was reviewed by independent experts; this is for example the case with projects funded by the European Commission. However, it was felt that the ‘review’ of the project happens intrinsically within the framework of the project development process, in that ETN members would not commit their human

and financial resources to projects, unless they were considered worthwhile by the partners and their management.

The Board did however feel that where projects are developed under the 'ETN brand' there needs to be a degree of oversight by the ETN Board and Project Board, to ensure that the goal and process of the activities is in line with the ETN message. Moreover, the members of each of the Boards hold a lot of valuable knowledge, which should be utilised through giving recommendations, to optimise the potential of initiatives and projects. Therefore, following their initial strong involvement with the initiation phase of projects, the Project Board should hold an advisory role, to ensure their continued quality.

Practical considerations:

Some practical aspects of the new internal structure and project development process, as well as the new ETN Project Board, were also discussed.

It was agreed that members of the Project Board should be nominated by the ETN Board members; there will be a yearly review, to ensure that the necessary expertise is represented. There must be a Chairperson of the Project Board, who will lead the process and the twice-yearly meetings. The proposed nominees for the Project Board were:

- Peter Jansohn, PSI (Switzerland)
- Peter Breuhaus, IRIS (Norway)
- Naser Sayma, Sussex University (UK)
- Andre Zeijseink, KEMA (The Netherlands)
- Sauro Pasini, Enel (Italy)
- One representative from Oil & Gas

The Board approved the proposed nominees and suggested inviting Heikki Oltedal (Statoil) as a representative from Oil & Gas, or a representative from ExxonMobil, BP or ENI, if they decide to become an ETN member.

With regard to the project development process and funnel diagram, A. Williams called for a more detailed version, which clearly defines the checks and balances, and which reviewers are to perform them. J. Maunand pointed out that Gate 3 of the funnel diagram needs to be a contractual agreement, with a clear Description of Work (DoW) and commitment from the partners. It was also mentioned that the funnel diagram should be considered dynamic, and that a project consortium may be required to take a step back if the intended Intellectual Property generated changes, to redefine the terms of the contract. If an ETN member wants to join an ETN project which has already progressed considerably, it is for the steering committee of that project to decide. Should a non-ETN member wish to join an ETN project they must become a member (if they meet the membership criteria). This is because the support and expertise provided by the ETN Office and Boards is financed through their membership fee.

Action: C. Björkqvist to develop the Internal Structure and Project Development diagrams with a PR company.

Action: C. Björkqvist to develop a Matrix of the Project Board nominees, representing their areas of expertise.

Action: C. Björkqvist to develop a more detailed funnel diagram to clearly define the check and balances of the project development process.

Action: B. Quoix knows the Head of R&D of BP in Houston, US, and will contact her to encourage membership of ETN, as well as potentially to become a Project Board member.

Action: J. Clarke to contact ENI to encourage membership of ETN, as well as potentially to become a Project Board member.

7. ETN Initiatives and Projects

C. Björkqvist presented the progress and status of potential and current ETN Projects to the Board.

Exhaust Systems Project Group:

It was reported that ETN's Project Group on Exhaust Systems has made considerable progress in the past 4 months on the review of the WHRU standard, and is now planning a meeting in Bergen, Norway on 15 March 2012. The aim of the meeting is to discuss the final review of the WHRU standard, the execution of a CFD benchmark case on a Total System during commissioning, as well as a revision of the project design and timeline. The ETN Project Group is now targeting a larger number of Utilities to participate in the group.

C. Björkqvist informed the Board of a document prepared to inform about the objective and current status of the Project Group, which has been circulated to ETN members, and especially Utilities with the intention to increase interest. The document includes background information, project group members, agenda, next steps, as well as the benefit of participating in the Project Group.

C. Goy questioned the focus of the meeting, on the grounds that Utilities may be more interested in attending the Project Group once the aim progresses to developing a standard for steam generators. H. Hönen replied and pointed out that two separate standards are required, and that it would be beneficial for the Utilities to attend the upcoming meeting, in order to have the background information, as well as to steer the future direction of the Project Group. H. Hönen mentioned that Pascal Decoussemaeker has a special interest in electricity markets, and had offered to use his contacts to encourage more participation from utilities. Moreover, P. Decoussemaeker could maybe make an introduction at next or the following meeting, also including references to future standards to be developed.

Action: H. Hönen to discuss with P. Decoussemaeker the best way forward and ask him if he could make an introductory presentation at one of the upcoming meetings in 2012, and if he could use his network to encourage wider participation from utilities for that meeting.

Benefits of Emission Reduction Retrofits (ERR) on the Existing Gas Turbine Fleet:

It was suggested to change the title of this initiative from 'Benefits' to 'Issues related to'.

Filtration Technologies:

C. Goy suggested that Users should be more directly involved with the initiative and defining the standard, rather than simply providing input.

TopCycle Feasibility Study:

The project is currently in phase 2 of the funnel diagram – the goal and process has been identified, and they are currently in the process of developing a DoW and committing resources. The budget will be approximately 300,000 euro, which are to be split among the stakeholders. The Intellectual Property right remain to be determined. G. Cerri mentioned that the upcoming EC FP7 R&D Call could possibly provide a funding opportunity for the initiative.

Action: C. Björkqvist and A. Mom to push for the initiation of the feasibility study.

Action: G. Cerri to follow up on the potential opportunity to receive EC funding.

8. Implementation of New Internal Structure

C. Björkqvist suggested presenting the new internal structure of ETN to the General Assembly in the following ways:

- Presentation at the AGM
- ETN Website
- Membership information package
- Newsletter
- Press release

A. Williams questioned the value of a press release to announce the new internal structure, however agreed that it could be valuable if presented in such a way as to highlight the increased potential of carrying forward project for EU funding, to meet the EU's climate goals, and promote the ETN position paper.

Action: C. Björkqvist is to prepare for the implementation and presentation of the new internal structure to the ETN General Assembly.

9. ETN Newsletters, and the Young Engineers Forum

C. Björkqvist proposed maintaining the ETN Monthly News Summary as a members-only benefit, but beginning to disseminate the ETN Quarterly Newsletter more widely, to include ETN non-member contacts, for example from EU institutions, contacts met at ASME and Powergen, as well as potential members.

Moreover, at the previous Board meeting in Pau, France the Board members discussed the potential benefits of reaching out to Young Engineers, to inform them of ETN, and to catch their interest. One suggestion, by A. Williams, was to have a competition where students come together in groups and present papers on R&D on a part of the gas turbine, in an effort to win a prize. Another possibility, proposed by G. Lock, would be to target universities directly, and to go and do presentations about the gas turbine industry – universities are usually happy to interact with industry in this way. The Board however recognised that creating a Young Engineers Forum would require considerable efforts, and a cost/benefit analysis must be carried out, to determine whether ETN's resources should be invested into it.

J. Clarke proposed that the ETN Office should identify the purpose of contacting non-ETN members as well as young engineers, and prepare a Communications Strategy to be presented to the Board at the next Board meeting.

Action: C. Björkqvist to prepare a Communications Strategy for the upcoming Board meeting.

Action: C. Björkqvist to prepare a strategy of how to engage with young engineers, and to do a cost/benefit analysis of a Young Engineers Forum.

10. IGTC-12 Program, Speakers and Questions

C. Björkqvist presented the most up-to-date version of the IGTC-12 agenda, as well as a summary of the discussions which took place at the Conference Advisory Board meeting held in January 2012. The Board members suggested alterations to the focus of some sessions, and recommended speakers, which were included in the draft agenda.

11. Upcoming ETN Activities 2011

HYCOSOL Meeting	13-14 March 2012	Brussels, Belgium
Exhaust Systems	15 March 2012	Bergen, Norway
SP3/4 Meeting	19 March 2012	Amsterdam, The Netherlands
H2-IGCC Evaluation Meeting	23 March 2012	Brussels, Belgium
Board meeting	16 April 2012	Berlin, Germany (tbc)
AGM & ETN Workshop	17-18 April 2012	Berlin, Germany (tbc)
H2-IGCC meeting	9-11 May 2012	Venice, Italy
GT Course	4-8 June 2012	Pau, France
Board meeting	10-11 July 2012	Baden, Switzerland
High-Level User Meeting	16 October 2012	Brussels, Belgium
IGTC-12	17-18 October 2012	Brussels, Belgium
Board meeting	December 2012	(tbc)
H2-IGCC meeting	December 2012	Berlin (tbc)

13. Closing of the Board meeting

B. Quoix closed the Board meeting, and thanked J. Clarke for hosting the meeting, as well as his valuable input during the last year.

ACTION LIST

No.	Action	Responsible
1	Review content of Gas Briefing Paper.	AM, CG, JM
2	ETN to formulate a transparent strategy with regard to attendance of events where ETN is represented.	CB
3	Arrange meeting with EPRI in June 2012 when they are in Europe, to address partnership possibilities, and discuss their representation at the IGTC-12.	JM, CB
4	Ensure that payment is received from CNRS.	CB
5	Contact Frits De Jong and Helge Reymann at Turbocare about ETN membership. Copy in B. Quoix.	CB
6	Follow up on progress of Maersk membership of ETN.	UK
7	Contact Mike Pepper at ExxonMobil about ETN membership.	BQ
8	Contact Gasunie about ETN membership.	RR
9	Prepare an updated budget proposal to be circulated to the Board, and prepare a financial presentation for the AGM to be approved by the Board at the upcoming board meeting.	HH, CB
10	Develop the Internal Structure and Project Development diagrams with a PR company.	CB
11	Develop a Matrix of the Project Board nominees, representing their areas of expertise.	CB
12	Develop a more detailed funnel diagram to clearly define the check and balances of the project development process.	
13	Contact the Head of R&D of BP in Houston, US to encourage membership of ETN, as well as the possibility of becoming a Project Board member.	BQ
14	Contact ENI to encourage membership of ETN, as well as potentially to become a Project Board member.	JC
15	Discuss the best way forward for the Exhaust Systems Project Group with P. Decoussemaeker, and ask him if he could make an introductory presentation at one of the upcoming meetings in 2012, and if he could use his network to encourage wider participation from utilities.	HH
16	Initiate the TopCycle feasibility study.	AM, CB
17	Follow up on the potential opportunity of receiving EC funding for the TopCycle project.	GC
18	Prepare for the implementation and presentation of the new internal structure to the ETN General Assembly.	CB
19	Prepare an ETN Communications Strategy for the upcoming Board meeting.	CB
20	Prepare a strategy of how to engage with young engineers, and do a cost/benefit analysis of a Young Engineers Forum.	CB

ANNEX

Actions (from Dec 2011 Board meeting)	Outcome / Next action	Responsible
Send information on contact person from Gas Turbine Efficiency in US.	<i>Done.</i> Payments for 2011 and 2012 received.	AW
CB to send membership package to AW to be forwarded to Ronnie Glen at Scottish & Southern Energy.	<i>Pending.</i> CB sent information to Ronnie Glen but no response yet. They have expressed interest in the TopCycle initiative. AW to follow up with him.	AW, CB
CB to prepare a summary of the main points in the briefing paper, and to disseminate it widely.	<i>Done.</i> Next steps are for it to be reviewed by AM and CG. JM also needs to ensure it is in line with the EDF position.	CB
CB to prepare information on the status, agenda and goals of the Exhaust Systems PG for the upcoming meeting in Bergen, Norway, which is to be circulated to the potentially interested ETN members.	<i>Done.</i> More input from Utilities are required. A possible switch in focus was discussed, which could encourage increased participation.	CB
Send JM the template for project proposals.	<i>Done.</i>	CB
CB to progress the design and development of the new website, and research possibilities that will enable simple login, as well as allowing members to easily add comments or files.	<i>Ongoing.</i> The intention is to have the website ready to launched in time for the AGM	CB
Investigate possibilities for cloud computing and website hosting platforms.	<i>Ongoing.</i> It is being investigated and offers are being compiled and negotiated.	CB, HH
Board members to come forward with suggestions of creating a young engineers platform, with information on ETN activities for non-members.	<i>Ongoing.</i> Will be discussed further during the meeting.	All Board Members
BQ to verify topic of Gas to Power panel discussion.	<i>Done.</i> CB partook in the panel discussion. His presentation was circulated.	BQ
CB to investigate possibility of ETN having increased visibility at the 2012 O&M Conference, and of chairing a session at the 2013 event.	<i>Done.</i> ETN will participate in 2012.	CB
JM to confirm the dates when EPRI is in Europe and propose a meeting.	<i>Done.</i> They are expected in June 2012, and a meeting will be arranged.	JM
GL to write a project proposal on Lifetime Consumed by Multi-Starting Engines which can be evaluated by the ETN Project Board.	<i>Done.</i>	GL
For TopCycle initiative CB to identify independent experts, discuss the legal rights to the patent and the intellectual property generated with the collaborating partners and try to initiate a feasibility study.	<i>Ongoing.</i>	CB

CB to research results of IGTC-10 and the creativity session, as well as other conferences, to identify topics of interest for technical papers.	<i>Done.</i>	CB
CB to collect results of the review of the technical abstracts submitted for the IGTC-12, and present it at the next Board meeting.	<i>Done.</i>	CB
Board members to propose relevant speakers for IGTC-12.	<i>Ongoing.</i>	All Board Members
Board members to propose 1 question for OEMs during the IGTC-12 keynote debate, to be sent to the ETN Office before 27 January 2012.	<i>Ongoing.</i> Half of the board members have proposed a question. Outstanding to be submitted.	All Board Members
UK to contact Mark Axeworth about giving a presentation.	<i>Done.</i> The first response was positive, but he asked for travel expenses to be covered. He has been notified that no budget available for this. Final answer pending.	UK
BQ to approach Claudio Santiago about being a speaker in the final IGTC-12 keynote session.	<i>Ongoing.</i>	BQ
CB to adjust draft IGTC-12 agenda to reflect discussed alterations.	<i>Done.</i>	CB
BQ and JC to suggest nominee from the Oil & Gas industry for the Project Board.	<i>Ongoing.</i> One possible candidate is Heikke Oltedal from Statoil. An alternative could be a representative from ExxonMobil. Other alternatives include representatives from BP or ENI.	BQ, JC
AM to send the criteria used by the EC in evaluating project proposals.	<i>Done.</i>	AM
CB to investigate website options for presenting the project proposals, as well as emails with an attached 'Yes/No' reply function.	<i>Ongoing.</i>	CB
CB to describe the new internal structure and its processes, circulate announcement of it to the ETN membership and circulate a call for project outlines for the ETN AGM in April 2012.	<i>Ongoing.</i>	CB
CB to investigate options to set up a webpage with information for gas turbine courses.	<i>Ongoing.</i>	CB