ETN NEWS

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ETN is a non-profit association bringing together the entire value chain of the gas turbine technology community in Europe. Through the co-operative efforts of our members, ETN facilitates gas turbine research and technology development, promoting environmentally friendly stationary gas turbine technology with reliable and low cost operation.

In this issue

Christer Björkqvist
Managing Director

In times of uncertainty we need cooperation

Uncertainties, disruption and faster changes will become the norm for organisations in the 21st century. We have to learn to live with the ever-increasing external forces and uncertainties that are affecting our society. In a perfect world, we would like to have a levelled playing field with a clear and stable European energy policy framework with common medium and long-term targets; however the likelihood that this scenario will materialise is quite low.

In the beginning of October, ETN held a workshop for its members in London, hosted by City University. It was a well-attended workshop with many intense and enlightening presentations and discussions. The main purposes of the workshop were to tackle the challenges in the current markets, to respond to the needs of the users by identifying potential R&D projects and to further advance on-going initiatives. In our previous edition (July 2013), I have stated that we cannot regulate our way out of this difficult situation we are facing in Europe, thus we need to innovate. The three most important ingredients for successful innovations are technical knowledge, creativity and drive. From the intense and fruitful discussions at last week's workshop I have no doubt that we have plenty of these ingredients within ETN.

However, it remains a challenge to build strong business cases for innovative ideas due to the increasing amount of uncertainties, the lack of clear energy policy framework and fixed targets which result in a more scattered market. Consequently, today it becomes a challenge to convince higher management of companies to invest in medium to long-term R&D when their main focus is on how to cut costs and reduce risks in an increasing global competition. So the question is how can we accelerate innovation under these market conditions? I believe there is a good business case under these circumstances to adopt a more open innovative and collaborative model at reduced risks and costs with a wider flexibility to follow market trends.

We cannot afford to stand still due to market uncertainties. I believe that continuous development and innovation and openness to both internal and external paths to the market will be the way forward for long-term success. The closed innovation model that was previously favoured will become inadequate in our future society. Some organisations have already started along this path but it is not an effortless trip, requiring a top down approach with support in the highest management in order to be successful. I am sure that you will find many people in your organisation that will embrace open innovation and see it as an opportunity but then again you will also find many that see it as a threat or will be very sceptical so it needs to be anchored in your internal strategy. If all can successfully implement such a mind-set we will increase dramatically our chances to break the barriers of the past.

With this in mind, I am pleased to announce our upcoming International Gas Turbine Conference (IGTC-14) that will take place in Brussels on 14-15 October 2014. The IGTC-2014 represents an ideal platform for open innovation and will allow you to widen your network and showcase R&D efforts as well as display future technical requirements to a wide audience that could in return provide you with the missing pieces or respond to your needs. We hope that this conference as well as ETN's other on-going activities can contribute to the required mind-set which is crucial for any organisation that would like to implement an innovation culture in a near future. The Call for Papers is now open and we hope to have a wide submission of quality papers, case studies and review papers.

New!

ETN will publish the first edition of its R&D recommendation report

At the ETN Workshop in London, Peter Jansohn, Chairman of the ETN Project Board, presented the draft of the ETN R&D recommendation report (first edition). The report has been created by the ETN Project Board, whose role is to provide an independent support to new initiatives or issues that are brought to the ETN platform. It will include recommendations on key research topics of gas turbine development based on the current market outlook and the users' demand. As this report will be a living document until its publication expected in the autumn 2013, all ETN members are still welcome to contribute with their comments.
The report will be published biennially after the ETN Workshop. The first edition will be circulated exclusively to ETN members in the autumn 2013 and circulated globally in the winter 2014. ■

Peter Jansohn
Chairman of ETN Project Board/
Paul Scherrer Institute

Past event

ETN Workshop, 9-10 October 2013 in London, UK

The ETN Workshop took place on 9-10 October 2013 in London UK and was kindly hosted by City University London. At the Workshop, the International Energy Agency presented an insight to the upcoming issue "The Energy Technology Perspectives" to be published in May 2014. The participants also had the opportunity to view presentations on open innovation, on the upcoming R&D funding programme Horizon 2020, on the new ETN R&D recommendation report and on cooperation opportunities for future challenges identified by the ETN Project Board.

ETN members discussed two projects that could fall under Horizon 2020:

1) Hybridisation of CSP systems with other energy sources and
2) Dispatchable power generation with minimum carbon footprint.

They also discussed the following ongoing projects and new initiatives that were brought on the ETN platform:

Technical Committees 1-2:

- Combustion Instabilities Project
- Virtual Testing Project
- Advanced CO_2 Gas Turbine Cycles

Technical Committees 3-4-5:

- Hot Borescoping
- TBC Literature Study
- Filtration Technology Project
- Advanced Sensors Project
- Condition Monitoring

This year, ETN members were invited to attend a dinner-event that took place on the Elizabethan, a replica of an 1890's Mississippi stern-wheeled paddle steamer, which cruises on the Thames River. The participants had the opportunity to have a delightful dinner while viewing London's most famous landmarks form the river boat.

All presentations given at the Workshop have been uploaded on the ETN website (member area) and are available exclusively to ETN members. The next ETN event will be the Annual General Meeting and Workshop, which will take place on 2-3 April in Paris, France, kindly hosted by Total. ■

ETN's cooperation with the IEA is growing!

The International Energy Agency (IEA) joined the ETN Workshop on 9-10 October 2013 in London and presented an insight to their upcoming publication, the Energy Technology Perspectives 2014 (ETP 2014).

ETN very much values this increased cooperation between ETN and IEA. Over the past years, ETN has established a sound reputation across Europe and has proven to be a valuable source of technical information to the EU institutions and to international organisations, such as the IEA. ETN provides a unique perspective on issues and challenges faced by the gas turbine community since ETN brings together stakeholders in the entire gas turbine value chain.

On this cooperation, Christer Björkqvist stated that "ETN and IEA possess very similar missions that make us work towards the same goal, which is to ensure reliable, affordable and clean energy by stimulating the development of environmentally friendly technologies. It is clearly a win-win situation where IEA receives valuable information from the users and from the R&D community that enables them to fully understand the market as well as to outline potential scenarios for reaching the set of policy targets. ETN also very much values the opportunity to provide inputs to such a renowned agency."

International Energy Agency

The IEA is in the final drafting process of the ETP 2014 which will dedicate a whole chapter to gas power technologies. The ETP is a biennial publication on energy technology that demonstrates how technologies can make a decisive difference in limiting climate change and enhancing energy security. The next edition will be published in May 2014. ■

The future of gas turbine technology

Call for papers for the 7th International Gas Turbine Conference

Date: 13-15 October 2014
Brussels, Belgium

The International Gas Turbine Conference is organised biennially and aims to raise the awareness of gas turbine (GT) technology development needs – from both oil & gas and power generation operators' perspectives – and to provide the opportunity to meet and exchange ideas with policy makers and GT experts from the whole value chain attending from Europe, North America, Middle East, and Asia. The conference will highlight the energy market outlook in Europe and globally, as well as to present and discuss on-going R&D activities on flexible, efficient and environmentally sound gas turbines.

The **keynote sessions and panel discussions** will address critical issues related to climate change mitigation in the context of the different and fast changing markets. Special attention will be given to increased operational flexibility, fuel flexibility, retaining reliability and lower emissions for both single cycle and combined cycle operation. Energy policies and initiatives for GT technology development in Europe and globally will be presented, followed by panel discussions with distinguished experts and high level policy makers.

In parallel, the **technical sessions** will address critical research and development activities necessary for the advancement of GT technology, from operational, environmental and cost perspectives. Recent GT technology and new, innovative solutions will be explored. The technical sessions will combine research initiatives and experience reports of real case applications, with the aim to give a balanced view of current developments and future needs for research in GT applications. ■

Submission of Papers: An abstract of approximately 400 words should be submitted in a Word document by e-mail with the title "Abstract" to etn@etn-gasturbine.eu before **15 November 2013**.
For more information on the Call for papers for the 7th International Gas Turbine Conference, please click here or contact the ETN office.

The IGTC-14 Conference Advisory Board invites for the submission of Papers in the following gas turbine research areas and application fields.

Review Papers giving a comprehensive technology overview of the past 2 years or **Case Study Papers** describing recent experiences as well as **Technical Papers** describing technoloy advances and innovative solutions are welcome in the following areas:

Flexible Operation & Fuel Flexibility:
- Fast & reliable start, high rate ramping and cost
- Efficient low load, and low emissions
- Fuel flexibility: H_2, syngas, biofuels, low BTU, CO_2- rich gas, H_2S contaminated gas

Materials
- Material developments - New alloys for high temperatures
- Coatings
- Failure mechanisms

Plant and System Integration
- Air filtration & general aerodynamics interfaces
- Exhausts and waste heat recovery units
- Hybrid systems: GT technology integration with renewables, conventional generation and energy storage

Turbomachinery
- Compressor performance, degradation & fouling
- Blade design and cooling technologies
- CFD: turbomachinery fluiddynamics

Electricity Operator Priorities
- Operator experience with flexible operations
- Maintenance procedures for GT with (very) low operating hours
- Open cycle vs combined cycle operation

Manufacturing and Repair
- New manufacturing techniques
- New repair technologies
- Influence of manufacturing on performance
- Cost reduction technologies

Oil & Gas Operator Priorities
- 25000 hours of uninterrupted operation
- Condition-based maintenance
- Novel Inspection techniques (online, hot components)

Combustion
- Wet combustion
- Dilute combustion (flue gas recirculation)
- CFD: high fidelity combustion CFD

EU news summary

EU Budget for R&D – From FP7 to Horizon 2020

The EU institutions finally agreed on a budget of 70.2 billion euro for the next EU framework programme for research and development, Horizon 2020 running from 2014-2020. Energy is likely to receive around 5 billion euro for non-nuclear energy research for the period 2014-2020 (this compares to 3 billion euro under FP7), of which 15% has been earmarked for efficiency improvements and for projects to support fossil fuels. The figures of the budget are approved, although the overall EU budget still needs to be voted on in October 2013.

The EU institutions, that are now entering the last phase of the adoption of Horizon 2020, seem to be taking a new, more system-oriented approach to R&D in the field of energy with less focus on individual technologies and more focus on pushing the innovation policy into the market deployment. More money for energy R&D is also expected from other parts of the new EU budget, which means that energy technology development could receive up to 6 billion euro in support.

Horizon 2020 will replace the EU's 7th Research Framework Programme (FP7), which runs until the end of 2013 and will bring together all existing EU research and innovation funding programmes under a single simplified scheme. Compared with FP7, the new programme is expected to simplify its design, rules, financial management and implementation in order to attract a strong participation of universities, research centres, industry and small and medium-sized enterprises (SMEs). Horizon 2020 reflects the priorities of the EU strategy on energy technology, materialised in the so-called strategic energy technology plan or SET-plan. It will also incorporate results from the debate on the 2030 package on climate change and energy policy.

Calls under Horizon 2020

Now that the negotiations are over, the first calls are scheduled to start on 11 December 2013. ETN has met with European Commission (EC) representatives over the past months in order to present potential projects that could fall under Horizon 2020, which were received positively by the EC. ■

2030 Energy and Climate package

The 2030 energy and climate package was discussed at the last informal Energy Council that took place on 19-20 September in Vilnius, together with the internal energy market and the external dimension of energy policy. After the Energy council, the EU's Energy Commissioner, Günther Oettinger said that "there was wide agreement that a new CO_2 emissions reductions goal is necessary for 2030". The figure proposed was a 40% CO_2 emission reduction.

Following the adoption of the Green Paper "A 2030 framework for climate and energy policies" in March 2013, the European Commission launched a Public Consultation which closed on 2 July. The results of the consultation should be published by the end of 2013. The European Parliament's Committee on Environment, Public Health and Food Safety (ENVI) and the Committee on Industry, Research and Energy (ITRE) will be jointly leading the draft of the non-legislative report on the issue. The vote in in the committee is currently scheduled to take place in January 2014. The 2030 package will also be on the agenda of the formal Energy Council that will take place on 12 December 2013 in Brussels. ■

Industrial Emissions Directive: Review of the BREF document

ETN, in collaboration with its members across the whole value chain of the gas turbine industry, has spent considerable time reviewing the Best Available Technique Reference document (BREF) under the Industrial Emissions Directive (IED) for the Large Combustion Plant. ETN published in September a cover letter in the BATIS (Best Available Techniques Information System), stating that ETN welcomes the efforts of the European Integrated Pollution Prevention and Control Bureau in compiling a document covering the wide range of technologies. However, ETN's review has highlighted a number of very important concerns that must be addressed during the consultation process. In total, over 70 comments were uploaded in the BATIS in September. The letter highlighting ETN's major concerns published in the BATIS along with the comments is also available on the Members' area of ETN website. For more information about ETN's involvement in reviewing the BREF document, please contact the ETN office. ■

New ETN Office

The ETN office has moved to its new premises in July 2013! ETN members are always welcome to come and meet us or work at the ETN office, which is located on Chaussée de Charleroi 146-148/20, 1060 Brussels. The new office is also equipped with a large meeting room, able to accommodate up to 15 people and is available for ETN members wishing to organise meetings in Brussels, upon request. For more information, please contact the ETN office. ■

New ETN members

■ Norwegian University of Science and Technology (Norway)

NTNU – Trondheim
Norwegian University of Science and Technology

New ETN Project Board Member

ETN is happy to announce that **Prof. John Oakey from Cranfield University** is now a member of the ETN Project Board. Mr Oakey specialises in the following fields:

- Materials and coatings for boilers and gas turbine systems;
- Fossil fuel and biomass/waste combustion and gasification systems;
- Corrosion, deposition, component life modelling and life extension;
- CO_2 capture and transport technologies and materials;
- Advanced power technologies – oxy-combustion, chemical looping and hot gas cleaning.

To view the current members of ETN project Board, please click here. ■

Job Vacancy: The ETN office is looking for a new colleague

ETN is looking for a Technical Project Manager who will be responsible for managing the technical activities of ETN. He/she will be responsible for the day-to-day management of the FP7 projects which ETN is involved in and will have to strategise with the ETN Project Board about possible new technical projects. He/she will coordinate the work streams of ETN's Technical Committees and Working Groups and assist ETN members in the initiation and management of technical projects.

The ideal candidate will have several years of experience in the fields of gas turbine and energy research as the position requires regular contacts and follow-up with high-level experts from the gas turbine industry and research institutes. We are looking for someone with enthusiasm, excellent spoken and written communication skills, and the ability to work independently and as part of a team.

For more information or to apply, please click here.
The deadline to apply is 15 November 2013.

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