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

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The best way to predict the future is to create it

The European energy generation market currently provides many uncertainties and is one of the most difficult to predict. EU member state leaders have endorsed the objective of reducing Europe's greenhouse gas emissions by 80-95% compared to 1990 levels by 2050. As a result, a new energy landscape is emerging with Renewable Energy Sources (RES) drastically increasing their share in the European electricity mix. This transition towards a sustainable energy system at affordable price is clearly one of the biggest challenges Europe is confronted with today.

Adding complexity to the uncertainty, the individual EU member countries have different resources and needs resulting in different energy policies. Four years after the Lisbon Treaty, the European energy markets are significantly far from the unique energy market goal the Lisbon Treaty intended to become.

As renewable power generation has first priority in the electricity grid, dispatchable power generation plants have been forced to move from base-load operations to load-following operations with significant reduced operational hours and many more starts and stops making it difficult to avoid negative prices per produced kWh. One would think that gas fed gas turbines, due to their flexibility and low emissions, would be the preferred option in this market. However, due to the high price of natural gas and low price of coal, combined with the historical low price of carbon, we witness an increase in generation from coal rather than gas. At the Gas to Power Europe Conference that recently took place in Brussels, the IEA stated that Europe is currently the only place globally where there is a reduction in gas consumptions.

With the increasing share of intermittent renewable energy production, the answer to the question of how to ensure the necessary replacement capacity at an affordable price is still in many regions unsolved. The discussion on a potential closure of the Irsching power plant, one of the most advanced and efficient gas fired power stations in Europe, highlights the gravity of the situation. However, under the Large Combustion Plant Directive (LCPD) which is set to come into force in 2016, utilities will have to either close coal-fired plants that do not meet the new standards or install costly pollution-control devices. With this is mind, along with an anticipated higher carbon price, gas is expected to increase its share in the energy mix.

Abraham Lincoln stated very wisely that "the best way to predict the future is to create it". To follow his advice we need to deal with all these political and technical uncertainties in a proactive way. From a political point of view, we need to show in a clear and understandable way the potential role that our sector could play with the right EU policy support. This would enable us to provide both sustainable and economical sound solutions that will allow us to meet the 2050 goals in an affordable way. From a technical point of view, we need to optimise research and technology development through increased cooperation and knowledge exchange in order to move forward in this unfamiliar territory and share the cost and risk to develop the required technology of the future.

In order to create a more attractive and investible energy landscape, we need to influence the intermediate 2030 climate and energy targets as well as to secure R&D opportunities under the upcoming Horizon 2020 programme. Hopefully we can turn some uncertainties into opportunities which will increase our chances to predict the future.

ETN's participation at Gas to Power Europe Conference in Brussels

On 25-26 February 2013, the European Turbine Network (ETN) attended the Gas to Power Europe Conference in Brussels. Christer Björkqvist, the Conference's Chair, addressed the Opening and Closing remarks and André Mom, ETN President Emeritus was invited to present ETN's technical briefing paper "The Potential of Gas and Carbon Capture and Storage in Meeting the EU's 2050 Energy Goals".

The two days conference highlighted the difficulties that the European gas market faces, with lower electricity demand due to the high amount of renewable generation, low CO_2 prices and relatively high gas prices. The Spanish market was highlighted as an example where the high amount of variable renewable power generation does not reduce greenhouse gas emissions as drastically as anticipated due to the fact that it is currently more economical to operate coal plants with a spinning reserve than to use gas turbines for load-following operations.

Eurelectric proposed that national support schemes for renewable energy should be aligned and gradually, phased out. The importance of capacity mechanism and a stable energy policy framework with intermediate 2030 targets was also raised by utility speakers.

Price of coal and gas

Thijs van Hittersum, Natural Gas Analyst at IEA stated that Europe is the only region with declining gas demand in the world and that gas is not likely to being competitive with coal in a near future. He mentioned that for power producers to prefer gas over coal as a fuel for power generation, the price of carbon emission allowances (EU Emissions Trading System) would have to rise to €40-50/ton - the proposed backloading of 900 million carbon emission allowances into the third phase of the ETS is therefore not sufficient.

On the other hand, Jasper Vis, Head of Regulatory Affairs at Dong Energy stressed that we are in a transformation period whereby highly intermittent energy supply from wind and solar requires flexible backup capacity, and natural gas is the most suitable solution to cope with it.

Jasper Vis also announced that Dong Energy, Shell, GE and First Solar have formed an Energy Partnership between renewable energy and gas, which is seen as an innovative way of unifying the industry to help reaching Europe's 2050 decarbonisation and energy goals.

EU Energy Policy

It was highlighted that the European Commission (EC) needs to find an agreement on milestones, incentive programmes and policy framework until 2030 as the industry needs clear directions and a continuity to commit to the required investments. Samuele Furfari, advisor to the Director General for Energy at the EC assured that they are currently working on the Energy and Climate Package 2030. He added that Energy Commissioner Günther Oettinger wants a decision taken on targets for 2030 before the end of the Commission's current term in 2014.

CCS

André Mom, President Emeritus of ETN stressed the advantages to flexible gas fired combined cycle gas turbine (CCGT) power stations with CCS when compared with coal fired super critical power plants with CCS. He stated that an almost fully decarbonised power sector is only achievable with a shift from coal to gas in power generation, in conjunction with the application of highly efficient CCGT technology, including CCS. He also mentioned that if member states are serious in meeting the 2050 targets, which mean a fully decarbonised power sector, this will only be achievable if CCS is part of the equation.

Shale gas

Jeroen de Joode, Coordinator Natural Gas at the Energy Research Centre stated that even with our most optimistic assumptions on unconventional gas, Europe will continue to rely on expensive imported gas. He also predicted that Europe is not likely to have ultra-cheap gas like it is now the case in North America.

For more details about the Gas to Power Europe Conference, please click here. ■

New ETN members

- Electric Power Research Institute (UK)

EPRI ELECTRIC POWER RESEARCH INSTITUTE

- TNO (The Netherlands)

TNO innovation for life

EU news summary

ETN active input to the Industrial Emissions Directive (IED)

On 14 February 2013, ETN submitted a letter in collaboration among members to the LCP BREF Review Team of the Joint Research Center of the European Commission (EC) regarding the Industrial Emissions Directive (2010/75/EU). The focus of this comment is related to the requirement that gas turbines permitted after 2012 meet a NO_x limit of 50 mg/Nm^3 when operating on liquid fuel.

The letter has been received positively by the EC representatives. Even though it will not be possible to change the existing content of the IED as this would require an amendment, ETN has been invited to provide input directly to the European IPPC Bureau (EIPPCB), who is in charge of drafting the Best Available Technologies Reference document (BREF) for large combustion plants (LCP). On 20 March, ETN met with EIPPCB representatives in order to ascertain where they stood on defining the BAT to reduce NO_x to 50 mg/Nm^3, to understand their timing for the associated draft documents as well as to discuss interpretation of potential derogations. ETN advocated for three technologies to be included as BAT: water or steam injection; water-oil emulsion premixing and SCR. ETN has promised to provide additional technical information to the final draft version of the BREF before it is sent for comments to the Technical Working Group in the course of the next months.

ETN will also closely monitor the developments regarding the IED and will keep its members updated on the latest developments. ■

Future Climate and Energy Package 2030

On 27 March 2013, the European Commission (EC) launched a series of papers and consultations aimed at developing EU climate change and energy policies for 2030: the long awaited Green Paper on "A 2030 framework for climate and energy policies", as well as a progress report on renewables and a consultative communication on the future of carbon capture and storage. The documents also aim to prepare the ground for the 2015 negotiations on an international agreement on climate change, which should be agreed at COP21 in France.

The EC's Green Paper launches the public consultations that will last until 2 July 2013, allowing Member States, other EU institutions and stakeholders to express their views on the potential climate and energy targets for 2030. Those views will feed into the EC's on-going preparations for a more concrete proposal for the 2030 framework which is set to be published by the end of 2013.

The current policy framework is based on three targets to be achieved within the EU by 2020, which are to reduce greenhouse gas (GHG) emissions below the 1990 level by 20%, to increase the use of renewable energy by 20% and to reduce the energy consumption by 20%. In 2011, EU GHG emissions were estimated at 16% below 1990 levels which means that the EU is on track to fulfil its goal. In 2010, the renewables' share of energy consumption was 12.7% compared to 8.5% in 2005. The energy consumption peaked in 2005/2006 at around 1825 million tons of oil equivalent (Mtoe). It has been slightly decreasing since then to reach 1730 Mtoe in 2011.

"**We need to define our climate and energy policy framework for 2030 as soon as possible to ensure proper investment that will give us sustainable growth, affordable competitive energy prices and greater energy security**", Energy Commissioner Günther Oettinger said in a statement. He also stressed that the EC may present the legislation by the end of the year, including binding targets for GHG emissions and for renewables energy. However, it is unlikely that binding targets for energy efficiency will be proposed, as the recent Energy Efficiency Directive is still being implemented.

The next few months will be a crucial period for debates on the 2030 framework. These policy documents will be discussed in the Environment and Energy Councils in the coming months, as well as at the 22 May Heads of State Energy Summit. ■

Proposed R&D topics to fall under Horizon 2020

On 24 January 2013, the ETN Project Board members met in Brussels to discuss the on-going and proposed ETN initiatives. The Project Board members also defined key R&D topics which ETN should put forward towards the European Commission (EC), with the goal to have them included in upcoming Horizon 2020 calls. The ETN Project Board recommended to propose projects in the following R&D areas:

- Fuel and Operational Flexibility: The key topics are hydrogen, biofuel, waste fuel, high part-load efficiency, combustion instabilities and condition monitoring;
- Hot Temperature Operation: The key topics are materials, coatings and cooling;
- (CSP) Hybridisation: The key topic is the development of concentrated solar power with gas turbines;
- Gas Turbine with CCS for flexible operation: The key topics are flexible CCS processes and control.

ETN members can propose new topics to the list, by contacting the ETN Office. ■

FP7 Projects

Kick-off meeting of the OMSoP Project

On 18-19 February 2013, ETN and the Optimised Microturbine Solar Power system (OMSoP) project consortium partners met in Rome, Italy for the technical kick-off of the project, hosted by ROMA TRE. The OMSoP Project, coordinated by Sussex University, aims to provide and demonstrate technical solutions for the use of state-of-the-art concentrated solar power system coupled to micro-gas turbines to produce electricity. This is a 4-year project, with a proposed budget of 5.5 million euro (EU funding 3,9 million euro). ■

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