**Introduction**

**ETN Office (reviewed by P. Jansohn)**

Comments from the PB meeting

P. Jansohn:

* highlight the new role of the PB and the extent of their responsibilities in this section.

A. Sayma:

* extending the introduction in order to have one full page of introduction
* add another full page for the PB members’ presentation.

In the energy transition scenario, Research and Development (R&D) in the turbomachinery sector has become of paramount importance to enable the deployment of carbon neutral technologies. After having analysed the potential impact that turbomachineries may have in the future, the General Assembly assigned to ETN’s Project Board the task to produce a Research & Development (R&D) Recommendation Report. The purpose of this report is to summarise recommendations for R&D topics based on interpretations of the user community’s needs and requirements as well as energy policy targets. The report is intended to be a living document revised on a biennial basis. The report lists topics in technical areas relevant to gas turbine systems being used in the two business segments ETN members are active in namely “oil & gas” and “power generation”. It considers topics related to: the integration of turbomachineries into new energy systems, the development of new system solutions, the improvement of the state of the art technology, emissions regulation and regulatory framework. The topics suggested should trigger respective actions within the ETN community in various forms: R&D projects, feasibility studies, best practice guidelines, development of standards and technical briefing papers.

The ETN Project Board is an ETN body nominated bi-yearly by the ETN Board considering criteria that includes:

* Type of organisation (Users, OEMs, Research Institutes, Third Party)
* Core business/interest of the organisation (focus on turbomachinery operational issues or research activities)
* Expertise in one or multiple topics of the Technical Committees
* Involvement in ETN Working Groups and/or User Group meetings
* Involvement in European policy and/or research initiatives
* Geographical area of belonging

It provides a consultative forum and independent support to new initiatives or issues that are brought to its attention. Providing a sounding Board for these ideas and initiatives that have originated from the entire body of ETN members, the Project Board advises on how to maximise the potential of new initiatives and provides recommendations for future action, as appropriate.

Since the 2018 ETN Annual General Meeting, the ETN Project Board has taken over the responsibility to lead and provide technical and strategic advices also to the ETN Technical Committees, which cover the most crucial areas of future gas turbine technology development. The TCs serve as forums where the ETN members meet to share experiences and discuss ideas and initiatives during the ETN events and they are divided as follows:

TC1 – Low Carbon GT Operations

TC2 – Operational and Fuel Flexibility

TC3 – Material Degradation, Repair Technologies & Manufacturing

TC4 – Condition Monitoring

TC5 – Asset Management

Individual projects can later be developed after the creation of dedicated working groups, as the present ones:

* Air Filtration Working Group
* Exhaust System Working Group
* Additive Manufacturing Working Group
* Micro Gas Turbine Working Group
* Hot Corrosion Working Group
* Ammonia/ Hydrogen Working Group

The Project Board, nominated by the ETN Board in 2018, consists of the following members who have all contributed to the various parts of this edition of the recommendation report:

**Marco Ruggiero**

BHGE

Italy

*Technical areas*:

Turbomachinery Experimental Verification

Test Systems Engineering

Measuring Techniques

Gas Turbines design and operation

Centrifugal Compressors design and operation

Control systems and instrumentation

**PICTURE**

**Abdulnaser Sayma**

City, University of London

United Kingdom

*Technical areas*:

Computational Fluid Dynamics code development

Aeroelasticity

Compressor and Turbine Aerodynamics

Micro-gas turbines, analysis, design and testing

Waste heat recovery using organic Rankine cycle

**PICTURE**

* **Peter Breuhaus**

International Research Institute Stavanger (IRIS)

Norway

*Technical areas*:

Fundamentals of aero and thermodynamics

Gas Turbine technology and design

Power plant monitoring and diagnostic systems

Power systems and systems integration

Process technologies

**PICTURE**

* **Peter Jansohn**

Paul Scherrer Institute (PSI)

Switzerland

*Technical areas*:

Fundamentals of Combustion

Gas Turbines

Power Generation Systems

Environmental systems; exhaust gas clean-up and emission reduction

Process Technologies

**PICTURE**

**Olaf Bernstrauch**

Siemens

Germany

*Technical areas*:

Turbomachinery package development (GT, ST, Gen, Aux)

Storage technologies and plant integration

Hybrid plants

(Waste) Heat recovery (sCO2, ORC, HTHP, …)

Co-Generation CHP

**PICTURE**

**Grant Terzer**

Capstone

United States

*Technical areas*:

Grid interconnections certifications
Exhaust recovery
Fuel conditioning and compression
Combustion with the fuels and emission standards

**PICTURE**

**Nicola Rossi**

Enel

Italy

*Technical areas*:

Energy

Power Generation

Combustion

Heat transfer

Emission control

Monitoring systems and predictive diagnostics

**PICTURE**

**Dominique Orhon**

Total

France

*Technical areas*:

Turbomachinery design, integration in process, operation and troubleshooting

Gas turbine qualification as new product for Company

Oil and gas plant design, construction, commissioning and operation

**PICTURE**

**Yiguang Li**

Cranfield University

United Kingdom

*Technical areas*:

Gas Turbines Performance
Gas Turbine Diagnostics and Prognostics
Gas Turbine Life Consumption Analysis
Combined Cycle Gas Turbines (CCGT)
Gas Turbine Performance Design and Tests
Combined Heat and Power (CHP)
Computational Fluid Dynamics (CFD)

**PICTURE**

**Chris Dagnall**

DNV-GL

United Kingdom

*Technical areas*:

**PICTURE**

**Peter Kutne**

DLR

Germany

*Technical areas*:

Gas turbine combustion

Optical and laser based diagnostics

Micro gas turbines

Decentralised combined heat and power

Innovative gas turbine cycles

Utilisation of biomass based and renewable fuels

**PICTURE**

**Rene Vijgen**

Sulzer

Netherlands

*Technical areas*:

**PICTURE**