



**EUROPEAN
TURBINE
NETWORK**

EXHAUST SYSTEM PROJECT GROUP

UGO SIMEONI
ETN

PG Exhaust Systems

Vision

Develop **ISO** Standard for Exhaust Systems.



Objectives

- Establish a technical document validated by all members of the workgroup.
- Internal standards from StatoilHydro and Shell used as a baseline.



ETN

PG Members

Chairman: Amélie PESQUET (TOTAL)

Co-chairman: Ole TORP (MJORUD)

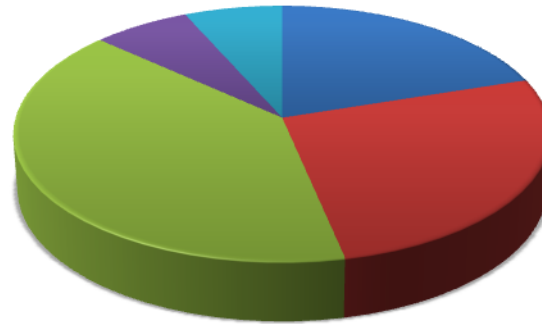
ACTIVE MEMBERS:

O&G Operators

STATOIL
SHELL
TOTAL

OEMs

ALSTOM
GE O&G
Dresser – Rand



■ O&G Operators
■ OEMs
■ Exhaust System Vendors
■ Universities
■ Consultants

Exhaust System Vendors

AAF
Aarding Thermal Acoustics
BIHL
Camfil Farr
Mjorud
Kanfa-tec

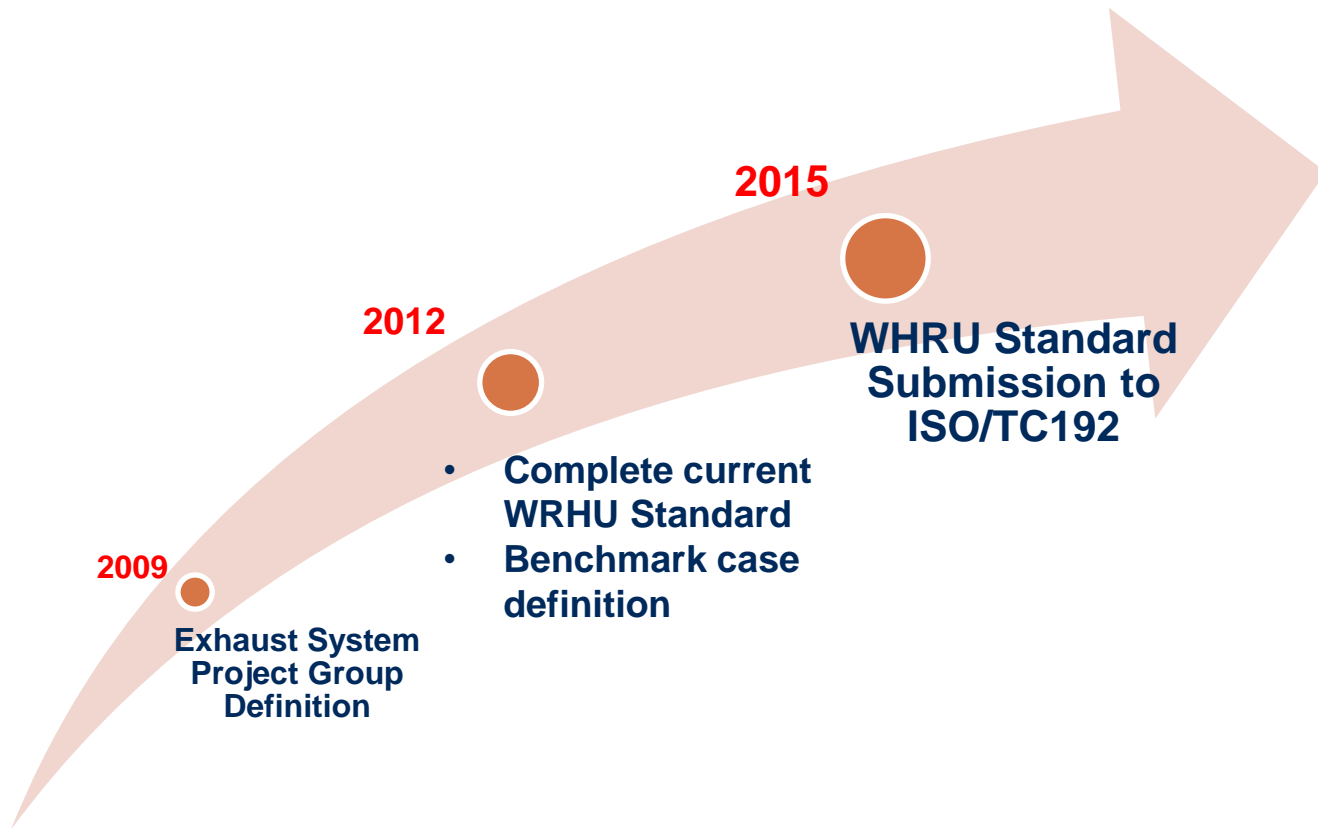
Universities

RWTH Aachen

Consultants

Frazer – Nash

Chronological update



2014-2015 Project report

- Review of the entire standard by PG members (TOTAL & BIHL)
- Final review of the comments by all PG members
 - ✓ 16 October 2014, ETN, Brussels
 - ✓ 27-28 November 2014, GE Oil & Gas, Florence
 - ✓ 12-13 January 2015, Frazer-Nash, London
- Review of the entire standard by sub-project group
 - ✓ 23 March 2015, ETN, Brussels



ETN

CFD Benchmark case

Objective

Develop a modelling of best practice guidance to validate the different types of advanced numerical modelling techniques such as CFD and FE analysis and therefore enable a more robust design of the Exhaust Systems.

Implementation phases

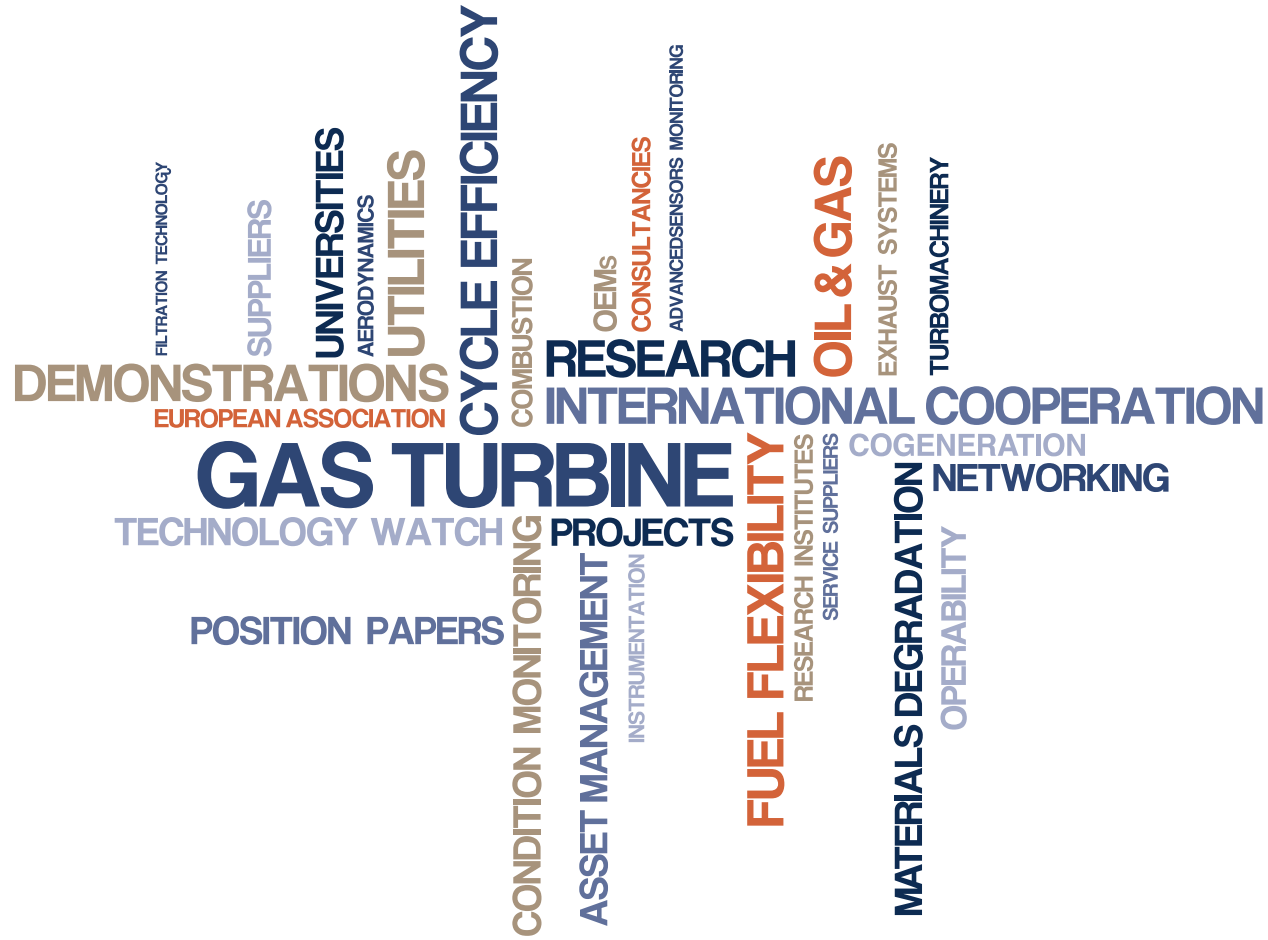
- Acquire exhaust flow measurements on an operating GT exhaust system to support CFD modelling validation.
- Analyse the same exhaust using different CFD modelling methods of varying fidelities and perform validation against the acquired measurements.
- Develop a best practice guidelines document for CFD modelling of GT exhaust flows for use in design and verification of GT exhaust systems.



2015 perspectives and further

- Establish with ETN the introduction of this standard to the industry
- Submit to the ISO/TC 192 committee the standard
- Explore opportunities for HRSG recommendation
- Re-discuss the CFD benchmark case

THANK YOU!





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