

HyPowerGT Consortium

Project Newsletter #2



HyPowerGT

*HyPowerGT – Demonstrating a hydrogen-powered gas-turbine engine
fuelled with up to 100% H₂*



More than a year has passed since the official kick-off of HyPowerGT. The second General Assembly of the project took place at SNAM premises in Milan, Italy on 11 and 12 February 2025. The event included several meetings:

- The site visit to SNAM facilities,
- The Executive Board meeting,
- The Work packages presentations in the plenum, and
- The General Assembly

Work Package 1 – Project Management

During the first year of the project, the coordinator (SINTEF) ensured the proper functioning through coordinated meetings. This resulted in an effective cooperation among all project partners involved in the HyPowerGT project.

Work Package 2 – Modelling assessment of DLE H₂ combustion system

Under the task “Hydrogen burning rate at high pressure”, project partners gathered experimental data on the turbulent burning rate of high-pressure premixed hydrogen flames. Such information was collected from the open literature.

Project partners will continue to collect further data on hydrogen premixed combustion at high pressure. The experimental data will be complemented by the further testing of the DNS code.

Work Package 3 – System prototype demonstration at TRL7

The HyPowerGT consortium also achieved substantial progress under Work Package 3 on the demonstration of the system prototype at TRL 7:

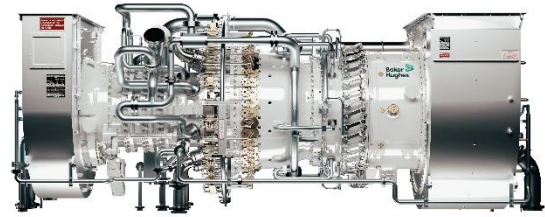
- The management of the Full Annual Rig Test campaign (TRL6) has started and is proceeding as per schedule.
- The design of the first kit of burners was finalized, the related production drawings released and the powder for the additive manufacturing production purchased, allowing to start with the production of the burners.
- A preliminary test requirement specifications for the engine test (TRL7) and for the full combustion system test campaign (TRL 6) were also released.

Work Package 4 – Safety management and risk assessment

As Work Package Leader, Baker Hughes led the task on the definition of safety guidelines. The knowledge matured at this stage was included in a dedicated deliverable (D4.1 on HSE procedures for HyPowerGT (Initial)).

Baker Hughes shared initial boundary conditions with CERFACS based on identified risk scenarios, focusing on the potential risk of accidental deflagration in the NovaLT16 exhaust system. The CERFACS team conducted early simulations using a high-fidelity solver (AVBP) to assess auto-ignition from H2 presence, showing that the tool can effectively model these events.

The FMECA workshop (lead by SINTEF) was also successfully performed in Florence, Italy in the recent months.



Baker Hughes NovaLT™16 gas turbine, 100% H₂ ready ()*

Work Package 5 – Impact assessment, retrofitting, road mapping, and techno-economic analyses

SNAM is leading the launch of this Work Package, which will ultimately develop and exploitation roadmap for hydrogen-fired gas turbines utilising the targeted DLE H2 technology.

Work Package 6 – Communication, Dissemination, and Exploitation

Project partners disseminated the objectives and ambition of the HyPowerGT to a large audience, by participating at relevant dissemination events.

Among the most relevant, the HyPowerGT was featured at the ETN October Workshop in October 2024, the Gastech Exhibition & Conference, and the “Hydrogen Gas Turbines – ETN Global Report”.

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