

HyTecHeat Project

The HyTecHeat (Hybrid Technologies for sustainable steel reheating) project is an initiative of the Horizon Europe program, funded by the European Union (EU) with a budget of about €3.3 million. Its aim is to validate hybrid heating technologies based on natural gas with a progressive increase of hydrogen up to 100% in downstream processing. Three Demo cases testing innovative multifuel burners will facilitate the hydrogen transition of the steel sector paving the way for the abatement of Scope 1 CO₂ emissions. Achieved results will bring a CO₂ saving in the range of 7.5-25Mt/year at the EU level.



Tenova Demo Case aims at the system integration, bringing together "hydrogen ready" combustion system, electrolyzer, and hydrogen storage at Tenova Castellanza headquarters. The partnership includes Snam for the hydrogen storage system and De Nora, which will provide the latest generation 1MW Dragonfly® electrolyzer, marking its inaugural use in a project of European significance. The electrolyzer will be strategically installed in the space adjacent to the TenovaLAB, Tenova's pioneering testing facility for the development of highly efficient and low-emission combustion systems.

Tenova TLX multi-fuel combustion system will run over a wide range of operating conditions representing steelmaking industrial furnaces. The trials will be done with both natural gas (NG) and hydrogen (H₂) at 100%, as well as several different mixtures of them.



The hydrogen is produced using renewable energy produced by the PV roof installed at Tenova by new high efficiency De Nora's 1MW Dragonfly® electrolyzer, able to supply up to 220 Nm³/h of hydrogen at 30 bar. One of the advantages of this solution is the containerized unit, which allows to minimize civil works (power supply and utilities are already on-board), proving the

flexibility of such solution.

Snam provided a 30m³ storage solution able to provide up to 900 Nm³ of H₂ at 30 bar, allowing to test different industrial scenario of green hydrogen use. An example is when the production of green hydrogen is cheap and its usage is not required, decoupling the production and the use.

