ETN's Additive Manufacturing (L-PBF) Machine Evaluation Initiative

The European Turbine Network (ETN) invites your organisation to become a partner of ETN's L-PBF Machine Evaluation Initiative, which was developed among members of ETN's Additive Manufacturing Working Group. This project has for objective to review the state of the L-PBF technology from the perspective of the energy industry, in order to develop a better understanding of its current level of maturation and ultimately provide supportive ground to push for collaborative developments and wider implementation.

Participation in this initiative will provide your organisation with opportunities for visibility as well as direct collaboration with leading actors active globally in the energy sector. The evaluation outcome associated to your contribution will be fully made available to you, together with an anonymised version of the overall conclusions.

Key benefits and requirements of the project are summarised below:

BENEFITS and COVERAGE

The ETN L-PBF AM Evaluation Initiative provides the involved L-PBF equipment manufacturers with direct visibility and marketing opportunities, together with strategic networking opportunities with representatives of companies interested in the promising developments of AM technology:

1. Opportunity for direct collaboration with a wide range of actors of the energy sector, many of them having a strong Additive Manufacturing development strategy in place or willing to implement one
2. Opportunity, facilitated by ETN, to communicate with members of the ETN Additive Manufacturing Working Group, and to discuss specificities of L-PBF technology as implemented in your solutions
3. Opportunity for long term visibility through ETN referencing this project to interested companies
4. Access to the anonymised version of the overall conclusions of the project, providing an unique overview of market-available L-PBF equipment comparing both Technical and Commercial KPIs (based on established standards e.g. ASTM, ISO, NF)
5. Detailed access to the evaluation information associated to your contributed parts
6. Opportunity to compare evaluation results obtained with machines which use equal powder, for identical topologies incl. test bars & test component
7. Independent reporting (by impartial 3rd party) and independent testing (all testing by single sovereign contractor)
8. Provides reference case showing willingness to collaborate with end-users of the technology
9. Low participation cost, with no monetary fee

PROJECT DESCRIPTION

The description below details the scope of the project, its future outcome and benefits.

Scope
The project will review the **quality** and **productivity** aspects of L-PBF technology.

The involved manufacturers will be manufacturing parts with Nickel Alloy 718 powder, according to specifications written in collaboration with members of the ETN Additive Manufacturing Working Group. The parts to be produced include features of specific interest to the energy sector (e.g. thin walls, cooling channels). Performance, quality and productivity are key elements that will be evaluated based on machine properties and test results of the manufactured components provided in as-built condition.

For more details, please refer to documents presenting the specifications and assessment criteria of the project.

Project management and testing programme
Project management, including the gathering, consolidation and reporting of the project's evaluation results, will be carried by a neutral third party organisation.

The manufactured part will be tested by neutral organisations, following assessment criteria communicated in advance.

Budget
One prerequisite for machine manufacturers to join the project is to deliver evaluation parts on a voluntary basis, i.e. at no production cost for the ETN consortium.

The ETN consortium will fund the remaining aspects of the project:

- Single batch of Nickel Alloy 718 powder for all equipment manufacturers
- Testing programme by a neutral organisation,
- Third party project management, results quality insurance and reporting.

Timeline
The project is scheduled for a launch in August 2021, and final report delivery in December 2021.

Outcome
The outcomes of the project will consist of

- a detailed report, evaluating and comparing technical and commercial characteristics of selected AM machines available on the market and sample parts they produced. The full report will only be available to ETN consortium members
- an anonymised version of the overall conclusions.

PARTICIPATION REQUIREMENTS

To validate your participation to the ETN L-PBF Machine Evaluation Initiative, your organisation will be requested to manufacture a set of defined geometries with a supplied batch of Nickel Alloy 718 powder – following the specifications provided by the ETN Additive Manufacturing Working Group – and to provide them in as-built condition as in-kind contribution to the project.

No monetary fee shall be requested by ETN or other involved parties.

COMMITMENT FORM

By signing this form, you confirm commitment of your organisation to joining ETN's L-PBF Machine Evaluation Initiative project

Name:	**Position:**
Organisation:	**Address:**
Postcode:	**City:**
Country:	**Tel:**
Email:	**VAT number:**
Signature:	
Date:	

TERMS AND CONDITIONS

- Official launch of the project will be announced by the ETN Office after all participating members of the ETN consortium have been identified and committed to the project funding.
- Each member of the ETN consortium will have access to the project's final report, as detailed in the project description.
- Each member of the ETN consortium and each participating L-PBF machine manufacturer will be required to sign a non-disclosure agreement, protecting the received data and information from undesired distribution.

About ETN Global: *ETN Global is a unique membership association bringing together the entire value chain of the gas turbine technology community globally. Through cooperative efforts and by initiating common activities and projects, ETN optimises gas turbine research and technology development and promotes environmentally sound gas turbine technology with reliable and low-cost operation.*

About ETN's Additive Manufacturing Working Group: *Members of ETN have initiated in 2018 an ETN Additive Manufacturing Working Group with the purpose to strengthen the cooperation between stakeholders of the turbomachinery value chain on additive manufacturing topics, which would ultimately allow faster and wider deployment of the technology in the gas turbine sector. This Working Group is composed of experts from across the whole gas turbine value chain: power generation and oil & gas companies, OEMs, R&D institutes, suppliers, service providers and technology consultancies.*

Organisations involved in the ETN Additive Manufacturing WG:

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