High Temperature Turbine Blade Alloy for Additive Manufacturing					
WG Name	**Additive Manufacturing**	**Chair**	**Ulli Klenk (Siemens Energy)**	**Co-chair**	**Jan de Roos (Shell)**
Project lead	**Yogiraj Pardhi (Sulzer)**				
Core team	Jonas Rydland (ConocoPhilips), Carlo De Bernardi (ConocoPhilips); John Oakey (Cranfield University); Joy Sumner (Cranfield University); Steve Nardone (Engie); John Scheibel (EPRI); Alex Bridges (EPRI); Boby Noble (EPRI); Alex Gontcharov (Liburdi); Paul Lowen (Liburdi); Robert Tollett (Liburdi); Scott Hastie (Liburdi); Mauro Filippni (Polimi); Siavash Pahlavanyali (RINA); Roberto Sorci (RINA); Oriana Tassa (RINA); Stefano Lionetti (RINA); Ulli Klenk (Siemens Energy); Vladimir Navrotsky (Siemens Energy); Charles Soothill (Sulzer); Yogiraj Pardhi (Sulzer); Jacques Pascal (UCLouvain); Laurine Choisez (UCLouvain); Scott Lockyer (Uniper)				
ETN officer	Rene Vijgen, Nicolò Cairo				

Initiative description

Scope definition

The scope of this activity is to review the publicly available information and connect with alloy development companies, with the aim of searching developed alloys to low TRL (1-3). The process consists of selection of two to three alloys to evaluate printability and assess key mechanical properties (Fatigue, Creep, Oxidation, Etc.). Manufacturability of a select alloy will finally be demonstrated by using a representative stage 1 gas turbine blade geometry.

Objective setting

- Identify high temperature blade alloy (early TRL) and develop/validate it to TRL3/4 level.
- Minimum 50°C above currently processable high temperature alloys by AM.
- High-temperature alloy with 1000°C metal temperature capability for HP turbine blades.

Expected outcome

R&D leap to tackle additive Manufacturing of blade one ➔ efficiency increase & decarbonization.

Implementation of the activities

Project execution

A core group has started to describe the project definition in more detail. The scope and costing is presented to the ETN community and interested parties are joining to form a consortium. This will require full industrial funding, agreed contractual obligations and project management.

The project duration is 3 years. Co-operation is sought with a competent university, institutes and organisations that could execute the scope of work. The project management will be carried out by a dedicated project officer, reporting back to a steering group (the partners).

Project finances

The project is funded by the participating members of the consortiums.

Meeting schedule and dissemination

The steering group will meet on a monthly basis ensuring very close collaboration.

Full dissemination of detailed results is guaranteed within the consortium.

High level results will be reported in the various platform.

Deliverables & Milestones			
Deliverable 1	Title	**Timing**	Month-Year
Explain briefly.			
Deliverable 2	Report	**Timing**	03-2027
Explain briefly.			
Milestone 1	Project start	**Start date**	03-2024
Explain briefly.			
Milestone 2	Project end	**End date**	03-2027
Explain briefly.			