Partner Search – Horizon Europe

Topic(s) that you are interested in

Horizon Europe JU 2026 – 02-01: Affordable, Safe & Sustainable medium-to-large scale GH2 storage

Deadline of the topic(s)

15 April 2026

Expected role in the project

☐ **Coordinator**
☒ **Partner**

Quick description of your concept

SensiPhi proposes a new monitoring system for next-generation gaseous hydrogen (GH2) storage systems through the integration of embedded high-resolution distributed fibre sensing for continuous/periodical structural and operational evaluation.

The objective is to enhance safety, extend asset lifetime, and reduce the total cost of ownership of medium-to-large-scale GH2 storage tanks by transforming them into self-monitoring smart structures.

Within the project:

- **Optical fibres will be embedded in the tank during manufacturing or retrofitting;**
- **High-Resolution Distributed Acoustic Sensing (HR-DAS) will be used to interrogate the tank to map strain and vibration distribution at the cm scale;**
- **Tank's structural integrity will be monitored in real-time under cyclic hydrogen pressure loading;**
- **Algorithms will be developed for early detection of fatigue, microcracking, delamination (for composite tanks), and abnormal stress distribution;**
- **Digital twin and predictive maintenance modelling will be developed;**

The approach supports the Horizon objective of affordable and sustainable GH2 storage by reducing inspection frequency, minimising downtime, preventing catastrophic failure, and optimising structural design margins.

Description of the expertise requested/proposed (up to 10 lines)

We are seeking consortium partners with expertise in:

- **Medium-to-large scale GH2 storage tank design and manufacturing (steel and/or composite pressure vessels);**
- **Type III/Type IV/Type V composite hydrogen tank production;**
- **Hydrogen infrastructure operators (bulk storage facilities, refuelling hubs, industrial gas suppliers);**
- **Structural modelling and hydrogen-material interaction research groups;**
- **Certification bodies or safety validation experts;**
- **Digital twin and predictive maintenance system developers;**
- **Materials scientists specialising in hydrogen embrittlement and fatigue;**

- **Industrial end-users willing to host pilot demonstrations.**

A manufacturing partner embedding fibre during production is particularly important to validate scalable integration pathways.

Organisation information

Organisation name and country: **SensiPhi Ltd. / United Kingdom**
Type of organisation: **□ Enterprise ■ SME □ Academic □Research institute □ Public Body □ Other:**
Has your organisation previously participated in a proposal for Horizon 2020 or Horizon Europe? **■ Yes □ No**
Web address: **https://www.sensiphi.co.uk/**
Quick overview of your organisation: **Our core expertise is in distributed optical fibre sensing technology that transforms optical fibres into an array of sensing nodes that can be used to evaluate critical assets.** **We can achieve this by embedding specially designed optical fibre into structures and connecting it to our High-Resolution Distributed Acoustic Sensing (HR-DAS) interrogator, which acts as the brain of the system. This turns the entire structure into a self-monitoring, intelligent network capable of detecting defects and anomalies on the structure in real time.**