

The EU project **SCARLET** develops and industrially manufactures superconducting cable systems at the gigawatt level, bringing them to the last qualification step before a commercial installation.

The promise of superconducting cables lies in their high efficiency, compact size, and reduced environmental impact, which helps to overcome challenges posed by overhead lines and resistive cables. **SCARLET** will investigate superconducting cables at the system level, as their properties open the door for cost savings beyond the cables themselves.

**SCARLET** takes advantage of the high current capability of superconductors to operate the cables at medium voltage (25-50 kV), while still maintaining the gigawatt transmission powers. This reduction in voltage level leads to a simplification of the cable system along with a significant cost reduction.



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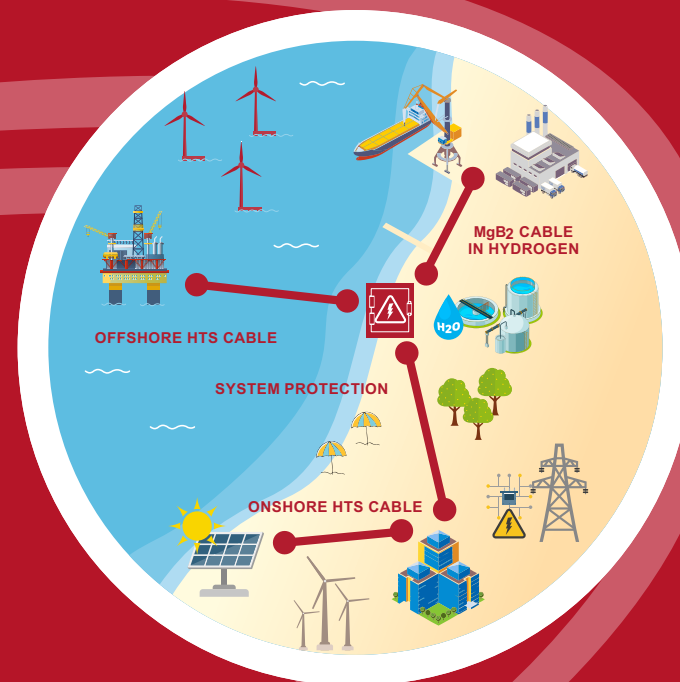
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# SCARLET

Superconducting Cables for sustainable Energy Transition

## Partners:

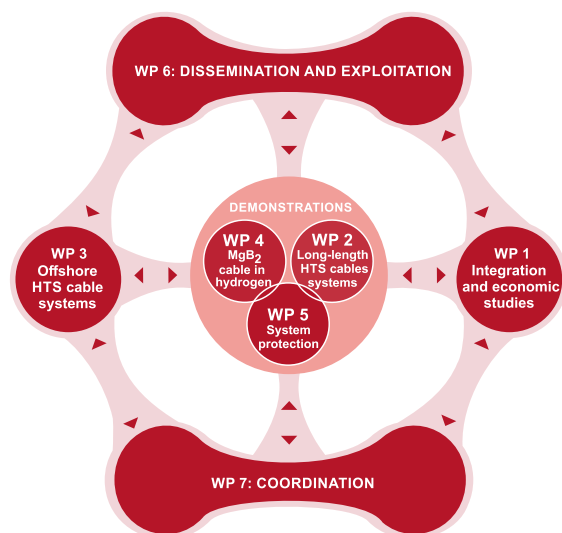


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**SCARLET** is a four-and-a-half-year project comprising five technical work packages and two work packages focusing on dissemination and management, respectively.

The technological core of the project lies with three demonstrators and the research leading to them, along with the work on submarine cables. Economic evaluations and in-field integration studies are conducted in a dedicated work package, to determine the feasibility of the different cable types.

The last year of the project is committed to demonstration activities, including long-term testing of the hydrogen-cooled cable.

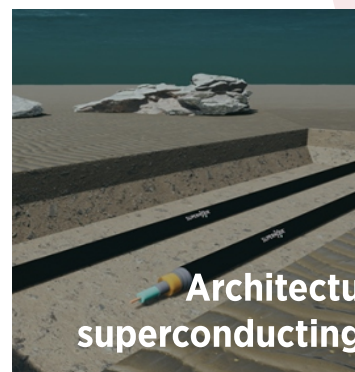


### Long-length superconducting cable systems

In this work package the design of long-length, nitrogen-cooled, high-temperature superconducting cable systems will be optimized, and a cable prototype will be demonstrated.

The main goal of this work package is to validate the design and operation of a hydrogen-cooled cable system based on the MgB<sub>2</sub> superconductor.

### MgB<sub>2</sub> cable in liquid hydrogen



### Architectures of offshore superconducting cable systems

This work package proposes architectures addressing the needs of the different use cases identified for offshore superconducting cable systems.

The aim of this work package is to identify the suitable system architectures and protection for the use of medium-voltage direct-current superconducting cables.

### System protection

