



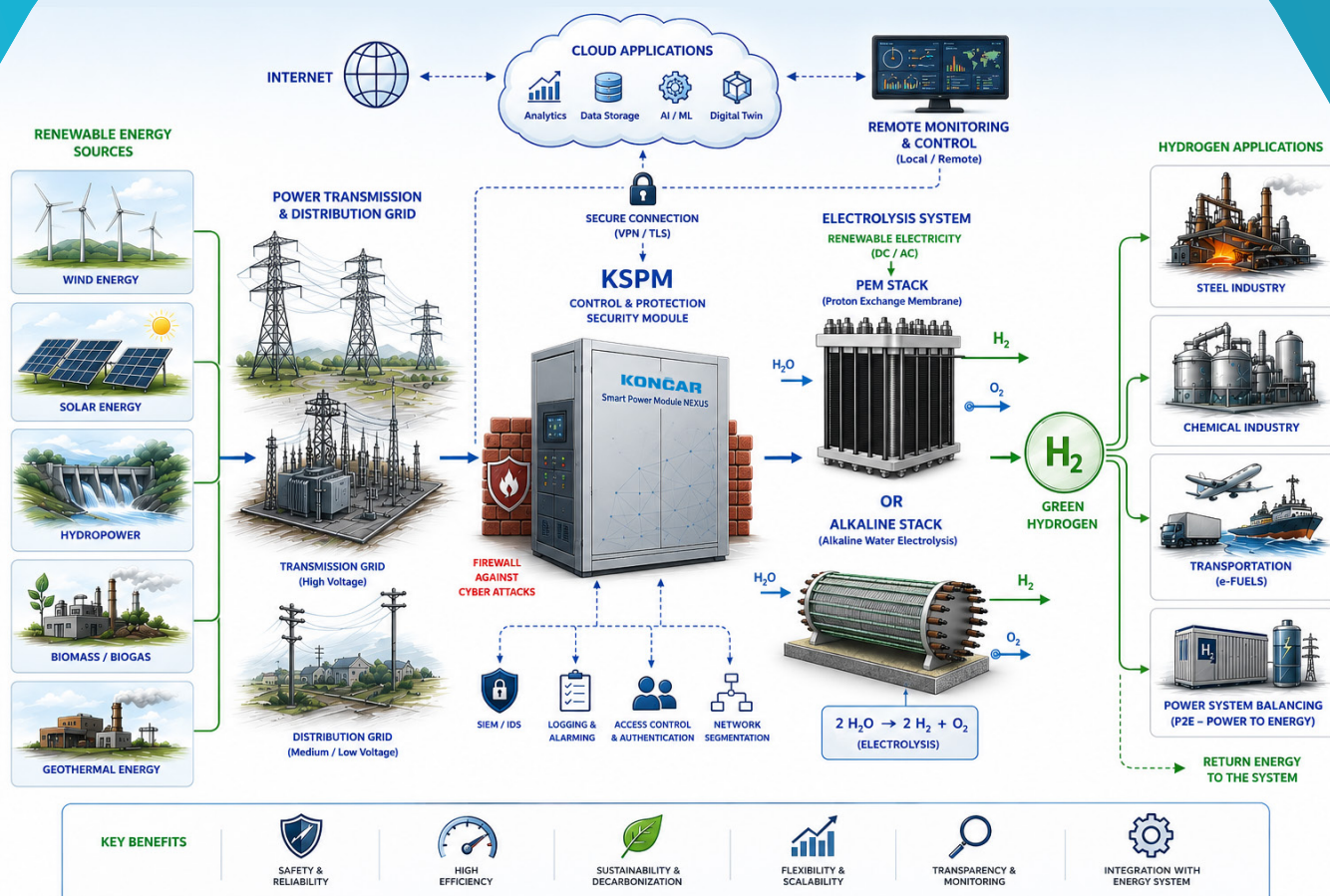
KONČAR

Smart
Power Module
NEXUS

Smart Power Module NEXUS

KONČAR has applied to the EU Innovation Fund with the project KONČAR Smart Power Interface for Next Generation DC Systems – KONČAR NEXUS, a clean-tech manufacturing initiative focused on industrialising a new generation of medium-voltage-to-DC power modules for large-scale industrial electrification, with primary application in renewable hydrogen production. The project is designed to support faster, more efficient and more scalable deployment of high-power DC infrastructure in Europe.

KONČAR NEXUS addresses a recognised infrastructure bottleneck in the decarbonisation of energy-intensive sectors. Large-scale renewable hydrogen electrolyzers require stable, high-quality (direct current) DC power, while existing grid connection solutions are typically based on fragmented (alternating current)-ACcentric architectures involving multiple components, interfaces and conversion stages. Such conventional approach increases electrical losses, system complexity, footprint and delivery timelines. KONČAR's response is the KONČAR Smart Power Module (KSPM), a standardised 2.5 MW modular platform based on solid-state transformer technology that integrates medium-voltage interfacing, protection, conversion, galvanic isolation, auxiliary supply, liquid cooling, and digital monitoring and control within a single containerised unit.





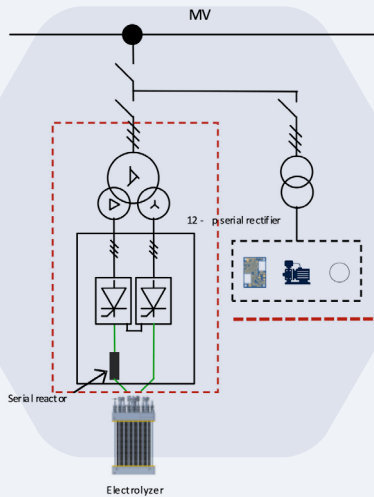
The KONČAR NEXUS value proposition lies in system-level integration. Compared with conventional transformer-plus-rectifier configurations, KSPM is intended to reduce electrical footprint by approximately 50%, decrease conversion losses to around 2% or below, and achieve system-level efficiency of at least 98%. The modular concept is designed to support repeatable deployment across different plant sizes by combining 2.5 MW units into larger systems, including installations in the 50 MW, 100 MW and above range. In this way, KONČAR NEXUS is positioned not as a pilot, but as the industrialisation of a commercially deployable product platform for next-generation electrification infrastructure.

The project is planned to be implemented across two complementary sites in the Zagreb area. The Fallerovo site will host engineering and validation activities, including a validation laboratory, engineering offices and a new 110 kV substation to enable full-scale system testing and industrial qualification. The Sesevski Kraljevec site is planned as a greenfield production location for serial assembly, testing and dispatch of KSPM units. The production facility is designed for a maximum output capacity of up to 200 units per year.

Beyond its industrial relevance, KONČAR NEXUS is positioned as a climate-impact project with expected absolute greenhouse-gas emission avoidance of 3,255,587 tCO₂e over ten years of operation, and relative GHG emission avoidance of 100% following the InnovFund methodology. The project also contributes to the strengthening of the European clean-tech and power-electronics value chain through the development of domestic manufacturing capabilities for advanced high-power electronics and integrated grid technologies.

KONČAR NEXUS involves planned CAPEX of up to EUR 70.670 million, with the amount of EUR 39.292 million expected to be co-financed from the Innovation Fund. The anticipated project implementation start is 1 May 2026, a targeted financial close by 31 March 2029, and an entry into operation on 1 January 2031.

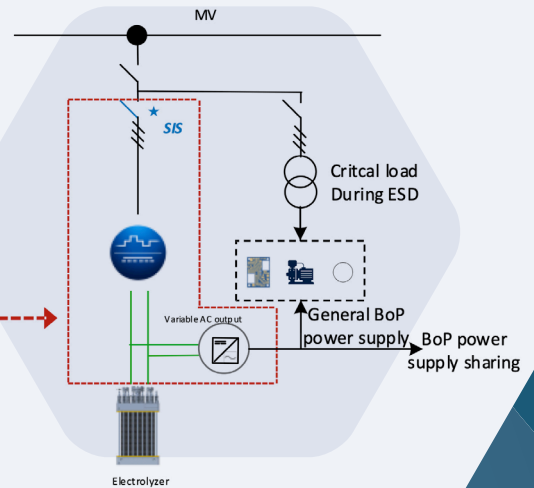
STANDARD SOLUTION



KSPM

10 - 20 kV AC
Adjustable DC voltage

KONČAR ADVANCED SOLUTION



Application of KPSM in Electrolysis Production Plant

NEXUS Vision

- Standardized 2.5 MW modular solid-state MV-to-DC power block
- Rapid, secure and scalable integration of large DC industrial assets
- Designed for next-generation European energy infrastructure
- Target application:
 - Electrolysis (RFNBO and low-carbon)
 - DC data centers
 - Battery Energy Storage Systems (BESS)
 - EV ultra-fast charging hubs
 - Power-to-X and industrial DC loads
 - RES integration

The problem we address

- Complex grid compliance requirements
- Harmonics and power quality challenges
- Long integration timelines
- Cybersecurity requirements (NIS2, critical infrastructure)
- Large footprint of conventional MV transformers + rectifier systems
- Grid Stability

The solution we provide

Standardized 2.5 MW modular power block based on:

- State of art MV switch
- Solid-State Transformer (SST)
- Integrated DC output stage
- Liquid cooled
- DXL technology for advanced high power DC Current distribution
- Cyber-secure digital control layer
- OEM-agnostic, plug-and-play MV-DC interface
- Standard dimensions



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