

COMET MODULE

[RENEW4EHS – RENEWABLE MATERIALS FOR ENERGY HARVESTING AND ENERGY STORAGE]

Main location: Linz (Upper Austria)

Other locations: St. Veit an der Glan (Carinthia), Tulln (Lower Austria)

Thematic area: Material & Production

(according to www.ffg.at/comet/netzwerk)

Thematic focuses

- Renewable materials for electronic systems
- New material solutions for Energy harvesting
- Improved materials for Energy storage

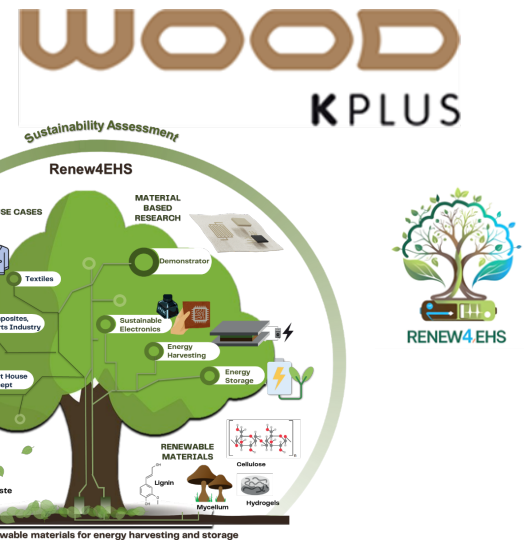
Renew4EHS develops electronic systems from renewable based materials that are simultaneously high-performing, environmentally friendly and energy autonomous.

Planned realisation and outcomes

Renew4EHS targets technologies that integrate biodegradable and renewable substrate materials, such as nanocellulose and fungal mycelium skin with conductive carbon-based inks. We will take a holistic approach to pioneering the use of renewable materials in the development of fully sustainable triboelectric and piezoelectric nanogenerators. Transforming energy storage, we will develop sodium-ion capacitors from sustainable hard carbon electrodes and renewable-based separators that offer higher energy densities, rapid charging, and long-term stability. The advancements will support applications such as smart construction materials for structural monitoring, process monitoring in manufacturing, and wearable health diagnostics, all while promoting sustainable digitalization.

The research goals and outcomes include developing:

- Biodegradable substrates for renewable energy systems
- Conductive inks for recyclable electronic components
- Energy-harvesting technologies using TENGs and PENGs from renewable materials
- Sodium-ion capacitors for efficient, renewable energy storage
- Fully inserted, self-powered, sustainable electronic systems



COMET FACTSHEET

Selected company partners (max. 10):

1. AdFiS products GmbH
2. FunderMax GmbH
3. Head Sport GmbH
4. Pleione Energy S.A.
5. TIGER Coatings GmbH & Co. KG
6. Papierfabrik Wattens GmbH & Co KG
7. Sendance GmbH
8. NOSI GmbH

Selected scientific partners (max. 5):

1. Johannes Kepler University Linz – Soft Matter Physics
2. Beijing Institute of Nanoenergy and Nanosystems
3. ETH Zürich – Institute of Building Materials
4. Instituto de Ciencia y Tecnología del Carbono

Selected international¹ partners (max. 5):

1. UPM Biochemicals GmbH
2. MycoFutures Ltd.
3. Mycrobez AG
4. HeiQ AeonIQ GmbH
5. Born GmbH

Duration:	01.01.2026 - 31.12.2029 (4 years)
Staff employment:	10 FTE, thereof 8 scientists
Management:	DI Boris Hultsch (CEO) Priv.Doz. Dr. Arunjunai Raj Mahendran (Module Lead)
Contact:	Kompetenzzentrum Holz GmbH Altenbergerstraße 69, A-4040 Linz Tel.: +43 732 2468 - 6751 E-Mail: zentrale@wood-kplus.at Website: www.wood-kplus.at

Status 30.01.2026

The COMET Module is funded within COMET – Competence Centers for Excellent Technologies – by BMIMI, BMWET as well as the co-financing federal provinces [Upper Austria, Carinthia, Lower Austria]. The COMET programme is managed by FFG. www.ffg.at/comet

¹ Partners with headquarters outside Austria