

# ENERGETICS

## PNRR - Circular approaches for increasing resilience and competitiveness

<b>Funded By</b>	MINISTERO DELL'UNIVERSITA' E DELLA RICERCA [P.iva/CF:97429780584] Politecnico di TORINO [P.iva/CF:00518460019]
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<b>Supervisor</b>	PRUSSI MATTEO - matteo.prussi@polito.it
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<b>Contact</b>	CHIARAMONTI DAVID - david.chiaramonti@polito.it
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<b>Context of the research activity</b>	<p>Among others, the Italian agricultural sector is key for the country economy. To this extent, researchers are called to support the development of innovative technologies in the agricultural sector, aiming at improving the quantity and quality of production, ensuring sustainable adaptation to climate change also through prevention, resistance and resilience to risks (drought, health emergencies, soil depletion).</p> <p>Circularity, eco-design, green and innovative materials, digital technologies, and advanced manufacturing are all well-known concept that can increase sector competitiveness.</p> <p>Made in Italy products are internationally acknowledged for its quality. Society and business are evolving nationally and worldwide and to maintain competitiveness, Italy is now called to pursue a radical transformation of its production sector. Industrial productions must align with the global call for action to respond to crucial issues, such as climate and social changes. These new production and circular models can also be exported abroad by Italian Companies operating worldwide.</p> <p>PNRR M4C2, Investimento 1.3 - Avviso n. 341 del 15/03/2022 - PE0000004 3A-ITALY Made in Italy circolare e sostenibile - E13C22001900001</p>
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	<p>The objective of the research is to apply the concept of fully closed-loops, self-sufficient, self-regenerative, reliable, safe, and energy-aware design and manufacturing for Agritech and Made in Italy/Circularity value chains, with a specific focus on the agricultural sector.</p> <p>In particular, through biot-based echnological and circular economy approaches the waste and residual biomass valorisation will be enhanced, and/or the exploitation of technologies and processes linked to sustainable agronomic practices as cover/catch cropping, intermediate or drought resistant crops for marginal land, etc.</p> <p>Biomass, waste and residual stream valorisation potential will be identified</p>
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**Objectives**

and selected, an appropriate conversion processes studied for application at real-scale. The possibility to target contaminated land and technological innovation to recover this and other marginal soils will be considered.

The research will have to contribute to promoting the development of alternative supply chains and energy profiles, so to enhance the techno-economic sustainability for farmers, even of small and medium sizes, based on a circular approach.

The research is expected to identify effective solutions for marginal agricultural areas at risk of erosion and/or low soil organic carbon/matter or salinization, generating innovation and promoting the resilience and sustainability of agricultural, agro-food, etc.

**Skills and competencies for the development of the activity**

The candidate shall be able to demonstrate the knowledge of the main processes for converting biomass, wastes and residual streams into energy vectors/other useful products.

The candidate should have a know-how in energy modelling and possibly, a proven experience in laboratory and/or field activities.