SUSBIOR project

Optimized and SUStainable BIORefinery supply chains in Spain for a climate-neutral European economy

SUSBIOR project PID2023-151855OA-I00 funded by MICIU/AEI/10.13039/501100011033.

Why SUSBIOR?

The SUSBIOR project is built on the hypothesis that the strategic implementation of biorefineries, leveraging bio-based energy and products, can address critical challenges in socio-economic development, environmental conservation, and resource utilization. By integrating advanced technologies and circular economy principles, SUSBIOR positions biorefineries as pivotal drivers of a sustainable future.

SUSBIOR focuses on the optimization of biorefinery supply chains to support decision-making and policy frameworks that enable Spain's transition to a carbon-neutral economy.

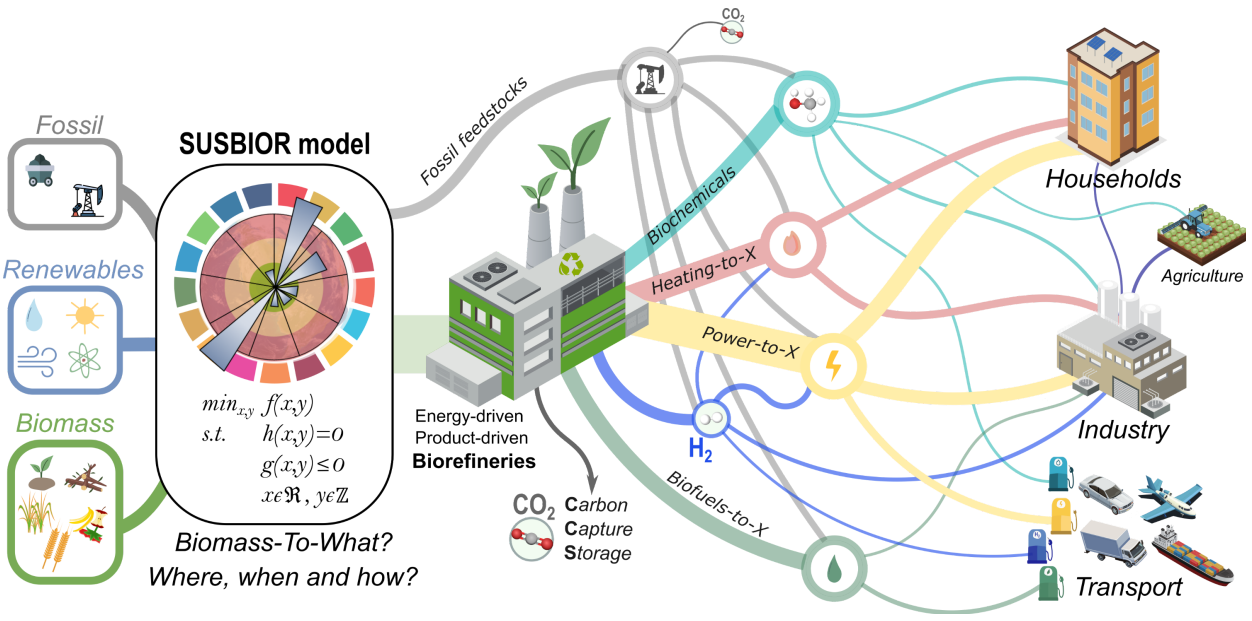
What is SUSBIOR?

SUSBIOR develops a comprehensive modeling and optimization framework that combines advanced tools with the AESA-LCA methodology. This integrated approach ensures the design of biorefinery value chains that align with the principles of sustainability and circularity, specifically targeting the energy, transportation, and industrial sectors.

Key Innovations of SUSBIOR:

- Incorporating Cutting-Edge Technologies: Integrating biomass conversion pathways coupled with carbon capture and storage (CCS) to remove CO_2 from the atmosphere.
- Valorizing Domestic Biomass Resources: Utilizing olive agro-industrial residues, sunflower stalks, rapeseed, wheat straw, and vine shoots.
- Holistic Environmental Assessment: Moving beyond conventional carbon footprint assessments by employing an AESA-LCA-based optimization model to evaluate collateral impacts on critical Earth-system processes.

> *SUSBIOR will drive sustainable biorefinery supply chains for a carbon-neutral future.*



Research Focus

The framework combines process simulation, life cycle assessment (LCA), and optimization tools, ensuring that biorefineries achieve sustainability goals while supporting practical policymaking.

Optimization Frameworks

Developing advanced models to inform decision-making and policy frameworks for sustainable biorefineries.

AESA-LCA Methodology

Pioneering bottom-up models to evaluate impacts of biohubs and biorefinery supply chains on critical Earth-system processes.

Valorizing Domestic Biomass

Leveraging Spain's agricultural and industrial residues, such as olive agro-industrial waste and wheat straw, to produce bio-based energy and products.

Holistic Sustainability Assessment

Integrating economic, environmental, and social dimensions to comprehensively evaluate biorefinery supply chains.

Expected Impact

Scientific, environmenral and economic and social impact

SUSBIOR will advance sustainable biorefinery systems by offering open-access databases, customizable models, and insights to optimize design, policies, and industry practices. Supporting Spain as a biohub in Europe, the project drives competitiveness and fosters regional development through eco-friendly initiatives.

Stay Connected

Visit our website:
https://angelgalanmartin.github.io/SUSBIOR
Scan the QR code for project updates.

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