Europe Delivers
WITH xynteo

CASE STUDY

RECOVERING EUROPE'S CONTAMINATED AND UNDERUTILISED LAND FOR BIOFUEL PRODUCTION

SCANIA

YARA

THE OPPORTUNITY

Biofuels have a significant role to play in decarbonising transport systems over the coming decades, as liquid fuels will continue to be critical for sectors such as marine, aviation and heavy-duty transport.

As EU climate policy begins to drive up demand for these fuels, a challenge remains in scaling the supply of sustainable and affordable biofuels.

Through Xynteo's Europe Delivers programme, the partners in its BioAdvantage Europe coalition saw a need to address the market gap by exploring the feasibility of recovering Europe's contaminated and underutilised land for sustainable biofuel production. If this proved to be feasible, we could demonstrate to policymakers and businesses in the bioeconomy that there is a commercially viable, environmentally and socially sustainable solution.

This would lead to a more rapid phase out of unsustainable feedstock (such as palm oil imports) with locally grown, low-ILUC risk feedstock that does not compete for land with crops for food or feed, while exploring other co-benefits.

> "MOVING FROM OUT-OF-THE-BOX THINKING TO OUT OF-THE-BOX DOING IS ABSOLUTELY KEY – BUT THERE'S NO WAY IF WE DON'T WORK ON THIS TOGETHER."

HUIBERT VIGEVENO
Downstream Director, Shell

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month-long study, sponsored by Xynteo's Europe Delivers partners, and members of its BioAdvantage Europe coalition; Scania and Yara

20+

stakeholders engaged, including experts within Scania and Yara and from relevant EU funded projects.

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candidate countries were selected based on mapping exercises and the development of site-specific data.

THE SOLUTION

To explore this opportunity, we created a robust feasibility study that explored the potential of growing feedstocks for sustainable biofuels on European land not used for food or feed.

We started by engaging over 20 stakeholders, including experts within Scania and Yara and academics from relevant EU funded projects, to understand key risks and opportunities of the project. We also conducted a comprehensive overview of the EU policy landscape to understand relevant opportunities and challenges for the project.

Our team obtained data on contaminated and underutilised land from the BIOPLAT-EU project and mapped this with biorefinery locations, distribution infrastructure and further data on contaminants to develop three scenarios on the opportunity size.

This mapping exercise informed the selection and development of site-specific data on locations in five countries (Poland, Italy, Germany, Spain and Czech Republic). The site data also served as input to our technical model (developed by Ricardo Energy & Environment) to assess total project costs for selected biofuels pathways and their associated GHG emissions savings against fossil-based diesel.

THE RESULTS

1.

Producing biofuels on EU contaminated and underutilised land could contribute up to 4.3 million tonnes of sustainable biofuels per annum, or 12% towards the EU's RED II Targets.

2.

Advanced biofuels can achieve superior GHG emissions reductions at 92% (compared to fossil diesel), and there is significant opportunity for scaling production with both new and existing infrastructure.

3.

Farmers require the right incentives, tools and support to grow sustainable feedstock on contaminated and/or degraded land. If achieved, these practices can enable a range of co-benefits, including GHG emission savings, and rural job creation to support a Just Transition.

4.

There is a shortage of detailed and accurate mapping of land types, soil quality and contamination levels at both Member State and EU levels.

After establishing the feasibility of this opportunity, we are now in the process of designing a demonstration project with Shell, Syngenta and Cargill to explore the commercial opportunity of remediating contaminated and/or degraded land for sustainable biofuels in European regions.

XYNTEO STUDIOS

During this project, expertise, support and leadership was provided by our Studio operating model.

- **PLANET-POSITIVE GROWTH**
- INCLUSIVE GROWTH
- INNOVATION
- LEADERSHIP AND CULTURE
- **FORESIGHT AND STRATEGY**
- **SYSTEMS COLLABORATION**

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Thank you

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