PROJECT FACTSHEET

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Persephone

Integration of Biogas into the new Bioeconomy "Production of renewable energies, fertilizers and harmonious products from natural origins".

Inspiration

In recent years, humankind has fully grasped that the planet's resources are being depleted, that production methods can no longer be linear, and that cycles need to develop to ensure that our activities are sustainable. Efforts are well under way to begin a transition, in other words the move from a fossil-based (energy and resources) economy to a bio-based economy that emits low levels of greenhouse gases. To achieve this, it needs to be demonstrated that the proposed bio-based alternatives are genuinely beneficial to our environment. Biomethanisation is the only fully-developed process capable of converting organic waste in an ecologically efficient way into flexible energy and fertilisers with high agronomic value (digestate). It has the potential to manage over 10% of global greenhouse gas emissions and to integrate agriculture into the budding circular bioeconomy.

Innovation

Persephone has the main aim of positioning biomethanisation in the bioeconomy and in the circular economy. The project team intends to see biomethanisation take the role of regulator of the production of renewable electricity in the energy mix. And it hopes to achieve this objective by enriching biogas and biomethane thanks to the innovative introduction of renewable hydrogen into bioreactors.
Persephone also seeks to develop three uses for digestate (organic fertilisation, production of algae, and refining and fractioning for new products) which help to deliver an environmentally-responsible form of development that respects the way of life in our societies by moving conventional agriculture towards sustainable methods of food, energy and materials production.
In concrete terms, LIST's experts in the fields of environmental technologies and bioprocess engineering are developing biomethanisation pilots and the conversion of hydrogen into biomethane, with a view to introducing and storing the latter in the natural gas network. They are also looking at the possibility of using digestate and its fractions as substitutes for chemical fertilisers, while monitoring their impact on soils and water quality.

Impact

Persephone adds to the range of applied research projects undertaken by LIST in public-private partnerships for renewable energy production, resource recycling and sustainable agriculture. Harnessing the potential of teams with expertise in microbiological bioprocess engineering, resource recycling and the production of bio-sourced products, LIST is also helping to transfer knowledge from the institute to industry and the agricultural sector. Persephone will make it possible to integrate biogas into the bioeconomy thanks to the growing role the sector plays in the production of renewable energy and to the development of new ways of using digestate as a substitute for chemical fertilisers and for the production of algae. The project team will limit its actions to the Greater Region territory, which will act as a pilot region, but will do everything in its power to achieve its ambition of seeing these actions applied on a European level. The project will entail providing additional support to political decision-makers in the Greater Region. Educating the general public about the possibilities of moving towards a sustainable and environmentally-friendly form of agriculture is also a significant impact.

Partners

Au pays de l'Attert ASBL (BE) , Agria Grand Est (FR) , Ama Mundu Technologies (LU) , Sustain Water (LU) , Biogas Vereenenegung a.s.b.l. (LU) , Biogas Beckerich (LU) , Ecole Nationale Supérieure d'Agronomie et des Industries Alimentaires (ENSAIA - Université de Lorraine) (FR) , University of Liège (BE) , Agra-Ost (BE) , IZES gGmbH (DE) , Naturgas Kielen (LU) , La Ferme du Faascht (BE) , Biogas Rohlingerhof (DE) , Bio Recycle sarl (FR) , Lycée technique Agricole (LU)

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