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Project

Renewable Systems Engineering

The Renewable Systems Engineering grant (RENESENG) is a new FP7 Marie Curie project that researches and trains a new breed of engineers with project experience in biorefinery. Its emphasis is on advanced process design, synthesis, model-based screening and analysis and process integration. RENESENG continues and builds on a series of successful European and national projects and is aimed at training future scientists and engineers in biorefinery related topics.

RENESENG aims to prepare a new generation of highly-qualified researchers in biorefinery and bio based Chemical Systems Engineering Sciences in Europe. The programme is expected to have a high impact on the design of newly establishing industrial complexes in biorefineries and more generally in eco-industries. RENESENG brings together interdisciplinary academic and industrial teams of high-quality experts, embracing disciplines in agricultural sciences, chemistry and chemical engineering, biology and biotechnology, computer science, process engineering, logistics and business economics, as well as social sciences (with an emphasis on life cycle analysis skills).

Coordinating efforts and disciplines

The project mobilizes a critical mass in Europe that is already particularly active in this area but needs to coordinate the efforts and reduce fragmentation of knowledge.

The principal scientific challenge of the network will be to foster interdisciplinary research from expert groups with dedicated interests in bio-renewables. To realize this, a model-assisted systems approach is used as an integrating aspect to address complex and large problems. The aim is to develop and validate modelling, synthesis,

integration and optimization technology, addressing:

- Lignin-based and cellulosic processes
- Water-based paths to biomass production
- Waste treatment paths
- Hybrids of bio-renewables with other forms of renewables

Training for high qualified researchers

RENESENG will develop a program of training activities. These activities include the development of communication materials, business and social skills, visits and social events. In this way, using a new profile researchers are able to transmit their knowledge to many different stakeholders associated with the Biobased Economy. RENESENG ensures high quality careers prospects for all, through the active participation of six industries, the creation of spin-offs and the sustainable implementation of a multicenter PhD training programme.

Optimal utilization of seaweeds in intergrated biorefineries

Optimal utilization of seaweeds in intergrated biorefineries

Andre Simons, the fellow working at Wageningen University and Research, gives a description of his work.

Training school dates

The 4th and last training school of the project took place in January 2017, organized by Arkema in Lyon.

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Contact form (/en/project/Renewable-Systems-Engineering-.htm?contactpersonid=2971&contactpersonname=dr.%20AM%20%28Ana%29%20Lopez%20Contreras&isorganisation=false&organisationname=Wageningen%20Food%20%26%20Biobased%20Research&organisationpart=BBP%20Bioconversion&presentationid=399132)

Project information

RENESENG (Renewable Systems Engineering)

Status: Completed
Start project: Nov 1, 2013
End project: Oct 30, 2017

Client(s): EU Seventh Framework Programma (FP7)

Partners: Wageningen Food & Biobased Research (/en/organisation-1/Wageningen-Food-Biobased-Research-4.htm)
Other parties involved: Coordinator: The National Technical University of Athens (NTUA).

Partners: Imperial College of Science, Technology and Medicine (IMPERIAL), Danmarks Tekniske Universiteit (DTU), Ecole Polytechnique Fédérale de Lausanne (EPFL), Center for Research and Technology Hellas (CERTH), University of Surrey (UoS), Compagnie Industrielle de la Matière Végétale (CIMV), Quantis SARL (Quantis), Bioprocess Pilot Facility (BPF)
Arkema France (Arkema), Delft University of Technology (TUD), Helector (Helector), Bioenergy 2020+ (BE2020).

More information

- [Fermentation technology (http://www.wur.nl/en/Expertise-Services/Research-Institutes/food-biobased-research/Expertise-areas/Biobased-chemicals/show/Fermentation-technology.htm)](http://www.wur.nl/en/Expertise-Services/Research-Institutes/food-biobased-research/Expertise-areas/Biobased-chemicals/show/Fermentation-technology.htm)

- [TripleP@Sea - Coastal and Marine Resources (/en/About-Wageningen/Strategic-Plan/TriplePSea-Coastal-and-Marine-resources.htm)](/en/About-Wageningen/Strategic-Plan/TriplePSea-Coastal-and-Marine-resources.htm)

- [Website RENESENG (http://www.reneseng.com/)](http://www.reneseng.com/)

Publications

- [Article "Biorefinery of the green seaweed Ulva lactuca to produce animal feed, chemicals and biofuels"- by Bikker, van Krimpen, Wikselaar et al. (http://link.springer.com/article/10.1007/s10811-016-0842-3)](http://link.springer.com/article/10.1007/s10811-016-0842-3)