

# LSB

Leaders of  
Sustainable  
Biofuels



## Industry platform driving development of advanced biofuels in Europe

LSB is a coalition of leading advanced biofuel technology developers and producers committed to making a significant contribution to meeting the EU ambitions of decarbonizing the transport sector. Sustainable advanced biofuels are a fast track solution for decarbonizing transport. Advanced biofuels bring multiple benefits in terms of CO2 reduction, investments, revenues for farmers and forestry, and an increase in energy security.

**biochemtex**



[www.biochemtex.com](http://www.biochemtex.com)

Biochemtex is part of the Mossi Ghisolfi Group, a leading name in the PET, engineering and renewable chemistry sector. It developed break-through proprietary technology (PROESA™) platform, commercialized by Beta Renewables, to produce clean fermentable sugars from cellulosic biomass. The PROESA™ technology platform, demonstrated on industrial scale at the Crescentino cellulosic ethanol plant, Italy, enables the cost-effective production of fuels and chemicals from non-food biomass derived sugars."

BTG is private consultancy, project development and research & technology development company specialized in bioenergy, biofuels and biobased materials. BTG is a SME and based in the Netherlands. BTG is well known because of its' many successful spin-offs. Through its' spin-off company BTG-BTL ([www.btg-btl.com](http://www.btg-btl.com)), the flash pyrolysis technology is rolled-out. Through BTG-BTL's daughter company Empyro (investment 20 million EUR, capacity 24.000 ton/year, 7 employees), the commercial production of crude flash pyrolysis oil has been taken place since 2015. The BTG-companies are particularly focusing at further expansion of installed production capacity and co-refining of pyrolysis oil in existing refineries.



[www.btgworld.com](http://www.btgworld.com)

**CLARIANT**



[www.clariant.com](http://www.clariant.com)

Clariant is a globally leading specialty chemicals company with 17,442 employees and an annual turnover of CHF 5.847 billion. Innovation and sustainability are two strategic pillars of its corporate strategy. In its Clariant Biotech Center (CBC) in Planegg near Munich, Clariant focuses on developing tailor-made biotechnological processes for the economic and sustainable production of bio-based chemicals and biofuels and offers its customers one-stop system solutions ranging from renewable feedstock, biocatalytic, catalytic and chemical conversion to downstream processing. For example, Clariant has developed the sunliquid® process, which uses enzymatic hydrolysis to sustainably produce cellulosic ethanol from agricultural residues.

DONG Energy is a focused energy company with a strong profile in renewables. DONG Energy 2016 revenue was 8,2 billion EUR and EBITDA was 2,6 billion EUR. The total number of employees is 6200. DONG Energy have activities primarily in Northwestern Europe and are the world leader in deploying offshore wind, At the same time, DONG Energy are taking the lead in converting existing coal- and gas-fired power stations to sustainable biomass, providing a heat and power supply which is both green and flexible. DONG Energy has two technologies for producing advanced biofuels "Inbicon", that use agricultural residues and "Renesience" that uses MSW.

**DONG**  
energy

[www.dongenergy.com](http://www.dongenergy.com)



[www.enerkem.com](http://www.enerkem.com)

Enerkem makes biofuels and renewable chemicals from urban waste. With its proprietary technology, Enerkem converts non-compostable and non-recyclable municipal solid waste into methanol, ethanol and other chemicals. The company offers a smart alternative to landfilling and incineration, and helps develop a circular economy where waste becomes a resource to make sustainable products. Headquartered in Canada, Enerkem owns and operates a full-scale commercial facility in Edmonton, Canada, as well as an innovation centre in the province of Quebec. The company is also developing additional biorefineries based on its modular manufacturing approach. In Europe, the company is partnering with industry leaders AkzoNobel, Van Gansewinkel, Air Liquide and AVR for the construction of a waste-to-chemicals and biofuels plant to be located in the Port of Rotterdam.

ENERGOCHEMICA SE is energy and chemistry holding with several production and sales companies and R&D institute. With its head office in Prague, Czech Republic, operations in Slovakia and 1 800 employees has a vision to become one of the major chemical and energy group in the region of Central and Eastern Europe. ENERGOCHEMICA SE concentrates its potential on traditional markets but also strives for recognition in the new market segments, such as bio-based industry. ENERGOCHEMICA SE is already building the largest second generation biorefinery in Europe using Proesa® technology. The project will showcase state-of-the-art technologies and demonstrate the techno-economic viability of lignocellulosic biorefineries.



[www.energochemica.eu](http://www.energochemica.eu)



[www.kaidi.fi](http://www.kaidi.fi)

Kaidi is a frontrunner of world-class bioenergy production and plans to build a globally unique biorefinery in Kemi by 2019 worth €900 million. Kaidi's sustainable technology produces second generation biofuels by using wood based biomass and forest industry residues as its main feedstock. Kaidi Finland is owned by one of the China's leading renewable energy and environmental technology producers, Sunshine Kaidi New Energy Group. Sunshine Kaidi has an asset value of over 7 billion euros and approximately 8,000 employees.

NEOT is a fuels procurement company owned by St1 Nordic and SOK with annual supply of 8 billion liters of fuels in Finland, Sweden and Norway. We are an obligated party under renewable energy directive and therefore have invested in advanced biofuels production from forest industry residues and other wastes. We are looking to further invest in advanced biofuels production capacity from forest industry residues, the next project being in the scope of 140 M€ investment and 25 direct jobs created.



[www.neot.fi](http://www.neot.fi)



[www.st1biofuels.com](http://www.st1biofuels.com)

St1 is a Nordic energy group whose vision is to be the leading producer and seller of CO2-aware energy. St1 has 1400 St1 and Shell branded retail stations Finland, Sweden and Norway as well as an oil refinery in Gothenburg. St1 also operates waste to bioethanol plants in the Nordics. Based on St1's proprietary technology, a first of a kind Cellunolix® unit that produces advanced ethanol from saw dust, is in operation in Kajaani, Finland. Company's turnover in 2014 came to 6,6 billion euros.

UPM Lappeenranta Biorefinery operates since 2015 with an annual capacity of 100 000 tonnes of wood-based renewable diesel and renewable naphtha. The investment cost was 179 MEUR. UPM's renewable diesel UPM BioVerno reduces GHG emissions by up to 80% and is a drop-in fuel that can be used in all diesel engines. UPM aims to grow in advanced biofuels industry. UPM leads the integration of bio and forest industries into a new, sustainable and innovation-driven future. UPM is headquartered in Finland with operations around the world. UPM employs over 19 000 persons and has turnover close to 10 billion EUR.



[www.upmbiofuels.com](http://www.upmbiofuels.com)

[www.sustainablebiofuelsleaders.com](http://www.sustainablebiofuelsleaders.com)

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