Fortum, UPM & Valmet Jointly Developing Advanced Biofuels

Thomson Reuters

Fortum, UPM and Valmet have joined forces to develop a new technology to produce advanced high value lignocellulosic fuels, such as transportation fuels or higher value bio liquids. The idea is to develop catalytic pyrolysis technology for upgrading bio-oil and commercialize the solution.

According to several studies pyrolysis technology is seen as the most competitive route to produce advanced lignocellulosic biofuels, and is one of the most efficient routes for meeting EU2020 greenhouse gas emission reduction targets.

The five-year project is called LignoCat (lignocellulosic fuels by catalytic pyrolysis). The project is a natural continuation of the consortium's earlier bio-oil project together with the VTT Technical Research Centre of Finland, commercializing integrated pyrolysis technology for production of sustainable bio-oil for replacement of heating oil in industrial use.

In this project, the consortium aims higher and the target is to develop novel integrated technology to produce high value biofuels to replace fossil transportation fuels, and thereby create new business for the consortium companies.

"We will develop pyrolysis technology enabling improvement of bio-oil quality compatible for further refining to transportation fuels or intermediate products. This is a business opportunity for us, which will lead to new sustainable processes and products. We see a great potential in this project and look forward to continued cooperation," says Jussi Mäntyniemi, Director, Technology and R&D, Valmet.

Successful project execution will help utilities and the forest industry sector in making investment decisions for entering advanced biofuel production.

UPM's knowledge of biofuels plays a key role in the project. "Our aim is to become a significant advanced biofuel producer. In accordance with our strategy, we will start production in Lappeenranta with crude tall oil residue as a raw material, and simultaneously we are looking for ways of producing biofuels out of solid wood biomass. Catalytic pyrolysis is one of the promising options we are looking into," says Petri Kukkonen, Vice President, UPM Biofuels.

New technologies based on integration enable energy efficient production of advanced biofuels and is a way to maximise the value of Nordic biomass.

"Fortum is eager to continue this work towards higher value bio liquids based on the former successful co-operation with our R&D partners. This project is a straight continuation to our first CHP (Combined Heat and Power) -integrated bio oil

investment in Joensuu and supports perfectly our strategy to increase total efficiency and value of our fleet of CHPs. The project's scope opens us the possibility to explore interesting new business opportunities and to define our role in the production chain of advanced biofuels", says Jukka Heiskanen, Head of R&D at Fortum's Heat business.

The LignoCat project is funded by Tekes - the Finnish Funding Agency for Technology and Innovation. The outcome, when successful, will be a new sustainable product on the market. It will significantly reduce CO2 emissions in the transportation and heating sectors, and thus help in achieving national and international targets in greenhouse gas emission reduction. The project will create a knowledge cluster within biorefining for universities, research centres and consortium partners.

In addition to employment opportunities, final products will have a positive impact on the Finnish and European trade balance as the target market for second generation transportation fuels by 2020 is 10 million tonnes per year.

Fortum
Fortum's purpose is to create energy that improves life for present and future generations. Catering to the versatile needs of our customers, we generate, distribute and sell electricity and heat, and offer related expert services. Our operations focus on the Nordic and Baltic countries, Russia and Poland. In 2013, Fortum's sales totalled EUR 6.1 billion and comparable operating profit was EUR 1.6 billion. We employ approximately 9,900 people. Fortum's shares are traded on the NASDAQ OMX Helsinki. www.fortum.com *[1]*

UPM
Through the renewing of the bio and forest industries, UPM is building a sustainable future across six business areas: UPM Biorefining, UPM Energy, UPM Raflatac, UPM Paper Asia, UPM Paper Europe and North America and Plywood. UPM products are made of renewable raw materials and are recyclable. The business serves customers worldwide. The group employs around 21,000 people and its annual sales are approximately € 10 billion. UPM shares are listed on NASDAQ OMX Helsinki. UPM - The Biofore Company - www.upm.com *[2]*

Valmet
Valmet Corporation is a leading global developer and supplier of services and technologies for the pulp, paper and energy industries. Our 11,000 professionals around the world work close to our customers and are committed to moving our customers' performance forward - every day. Valmet's net sales in 2013 were approximately EUR 2.6 billion. Valmet's head office is in Espoo, Finland and its shares are listed on the NASDAQ OMX Helsinki Ltd. www.valmet.com *[3]*

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