**PRESS RELEASE**

**Converting waste into renewable fuels: Finnish group selected as finalists at the European Inventor Award 2023**

* **The NEXBTL technology enables the conversion of waste and residue raw materials, like animal fat waste and used cooking oil, into premium-quality renewable fuels**
* **The renewable diesel reduces greenhouse gas emissions by between 75-95% compared to fossil diesel, according to the inventors’ company**
* **Their various fuels are suitable for existing vehicles in several sectors: road transportation, aviation, marine**

**Munich, 9 May 2023** – According to the International Energy Agency (IEA), the global transport sector emits approximately 7.3 billion tonnes of CO2 a year, around 20% of global CO2 emissions. They estimate that medium-to-heavy lorries and aviation alone are responsible for 30% of that total. To secure a more sustainable future and mitigate the effects of climate change, global greenhouse gas production must be reduced. A Finnish team; consisting of Pia Bergström, Annika Malm, Jukka Myllyoja, Jukka-Pekka Pasanen and Blanka Toukoniitty; have been part of developing **an innovative process to convert waste and residue raw materials into renewable products for road transportation, aviation and other sectors. The Finnish team are finalists for the European Inventor Award 2023** in the ‘Industry’ category in recognition of their promising work. They were selected from over 600 candidates for this year’s edition.

**A cleaner and more efficient fuel**

The inventors from Finland have been part of developing Neste’s proprietary NEXBTL™ technology and related processes to turn a wide variety of renewable fats and oils into premium-quality renewable products. Solutions produced with the technology include Neste MY Renewable Diesel™, which is compatible with all diesel engines and the use of which can **reduce greenhouse gas** (GHG) **emissions by as much as 75-95% over the life cycle of the fuel compared to fossil diesel**[[1]](#footnote-30325). Neste MY Sustainable Aviation Fuel™ (SAF) is a direct replacement for fossil jet fuel and the use of which, unblended, can reduce GHG emissions by up to 80% over the life cycle of the fuel compared to fossil jet fuel[[2]](#footnote-2458), according to the company.

The company uses a wide variety of globally-sourced raw materials, such as animal fat waste, used cooking oil and vegetable oil processing waste and residues, to produce its renewable products. Turning diverse waste and residues into pure hydrocarbons requires several steps. In the first step, impurities are removed from the raw materials in the pre-treatment process before further refinement in a catalytic process, where oils and fats from renewable origins are converted into hydrocarbons. In order to avoid the solidification of the product, the next essential step needed is called hydroisomerisation, where chemical catalysts rearrange the atoms, making the product less likely to solidify and hence suitable as a fuel for cold atmospheric conditions. This step makes sure that the engine of an airplane or car also runs smoothly in cold conditions.

Currently, Neste produces ca. 3.3 million tonnes of renewable diesel and other renewable products each year and plans to increase production capacity to 5.5 million tons by the end of 2023. It also plans to introduce liquefied waste plastic as a drop-in feedstock for petrochemicals.

**No innovation without collaboration**

Innovation is a team effort, drawing on **expertise across the company and with partners**, including from chemists, engineers, research and development professionals, and experts in renewable raw materials. When talking about disruptive ideas, Blanka Toukoniitty says: *“Everything is possible, impossible just takes more time. We really believed and worked hard. In the times of challenges and disbelief, it is important to remain focused on the goal. In research and development, you have to have patience and really just keep going”.*

Pia Bergström, who has a master’s degree in organic chemistry, previously worked as a researcher and is now a senior feedstock specialist. Annika Malm holds a Master of Science in chemical engineering, and after her researcher career at Neste, she currently works with development of raw material utilisation. Jukka-Pekka Pasanen has a master’s degree in Bioprocess Engineering and Food Engineering and focuses on researching renewable fuel processes and renewable feedstocks, and Jukka Myllyoja is a synthesis chemist by training and experienced R&D Fellow who has worked for new technology development at Neste R&D for more than 30 years. Blanka Toukoniitty has a PhD in chemical engineering and a broad knowledge of developing value chains for processing renewable and circular economy feedstocks into valuable products.

Myllyoja describes the difficulties and their collective motivation to reduce transport carbon emissions; *“climate change is a huge challenge. All possible solutions are needed to reduce the transport GHG emissions, no individual technology can solve this issue. We have to use all the capabilities and the different paths to get rid of the fossil crude oil-based and coal-based energy sectors”.* Bergström adds, “*we consider ourselves the forerunners in the field of renewable fuels. Very often we have had to find solutions for challenges, or actually opportunities. A lot of hard work, many great colleagues, talent, and good luck is behind our innovations and success”.*

The team has been shortlisted by an independent international jury. **The winners of the 2023 edition of the European Inventor Award will be announced at a hybrid ceremony on 4 July 2023** in Valencia (Spain). This ceremony will be broadcast online [here](https://inventoraward.epo.org?mtm_campaign=EIA2023&mtm_keyword=EIA-pressrelease&mtm_medium=press) and will be open to the public.

Find more information about the invention’s impact, the technology and the inventors’ stories [here](https://new.epo.org/en/news-events/european-inventor-award/meet-the-finalists/pia-bergstrom-annika-malm-jukka-myllyoja?mtm_campaign=EIA2023&mtm_keyword=EIA-pressrelease&mtm_medium=press&mtm_group=press).

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**About the European Inventor Award**

The European Inventor Award is one of Europe's most prestigious innovation prizes. Launched by the EPO in 2006, the award honours individuals and teams, who have come up with solutions to some of the biggest challenges of our time. The finalists and winners are selected by an independent jury comprising former Award finalists. Together, they examine the proposals for their contribution towards technical progress, social and sustainable development, and economic prosperity. All inventors must have been granted a European patent for their invention. Read more [here](https://new.epo.org/en/news-events/european-inventor-award?mtm_campaign=EIA2023&mtm_keyword=EIA-pressrelease&mtm_medium=press) on the various categories, prizes, selection criteria and livestream ceremony to be held on 4 July 2023.

**About the EPO**

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1. calculation methods: EU RED II 2018/2001/EU for Europe and US California LCFS for the US [↑](#footnote-ref-30325)
2. calculation method: CORSIA [↑](#footnote-ref-2458)