



# GREBE

Generating Renewable Energy  
Business Enterprise



**Ecohog – Technology for the waste and recycling sector**

**–Technology Transfer case**

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## Ecohog – Technology for the waste and recycling sector

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Photo: Ecohog Ltd.

### **Background**

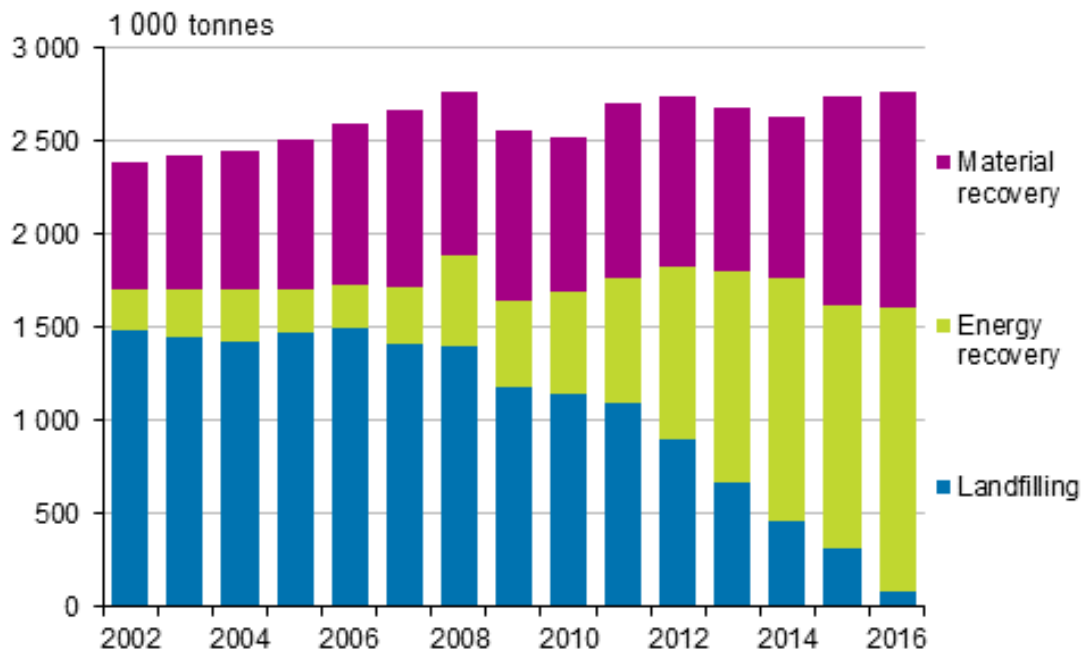
Ecohog Ltd. is a family owned equipment manufacturer located in Co Tyrone, Northern Ireland. Although it is a small and medium-sized enterprise (SME), Ecohog operates on a global scale and has over 20 years' experience supplying equipment to the waste and recycling sector.

Through extensive market research, R&D and concept design in finding solutions to waste sorting problems, Ecohog have developed various products including the Ecohog Windshifter, and Metal Recovery Ranges.

The Ecohog product range has been designed for both mobile and static installations incorporating low energy consumption, low noise levels, and low dust emissions, whilst meeting the latest legal regulations. Ecohog pride themselves, that using their extensive experience and knowledge of the industry, each Ecohog unit is custom tailored to accommodate the customer's specific needs and process requirements.

## Waste and recycling of municipal waste in Finland

The recovery of waste has become increasingly important in Finland. Waste recovery can be done in the form of material recovery or energy recovery replacing the disposal of municipal waste at landfill sites. The disposal of municipal waste at landfill sites has strongly decreased and has been replaced by waste recovery to a large degree. In 2016, 97 per cent of municipal waste was recovered, only three per cent was disposed of at landfill sites. The total amount of municipal waste was approximately 2.8 million tonnes in 2016.



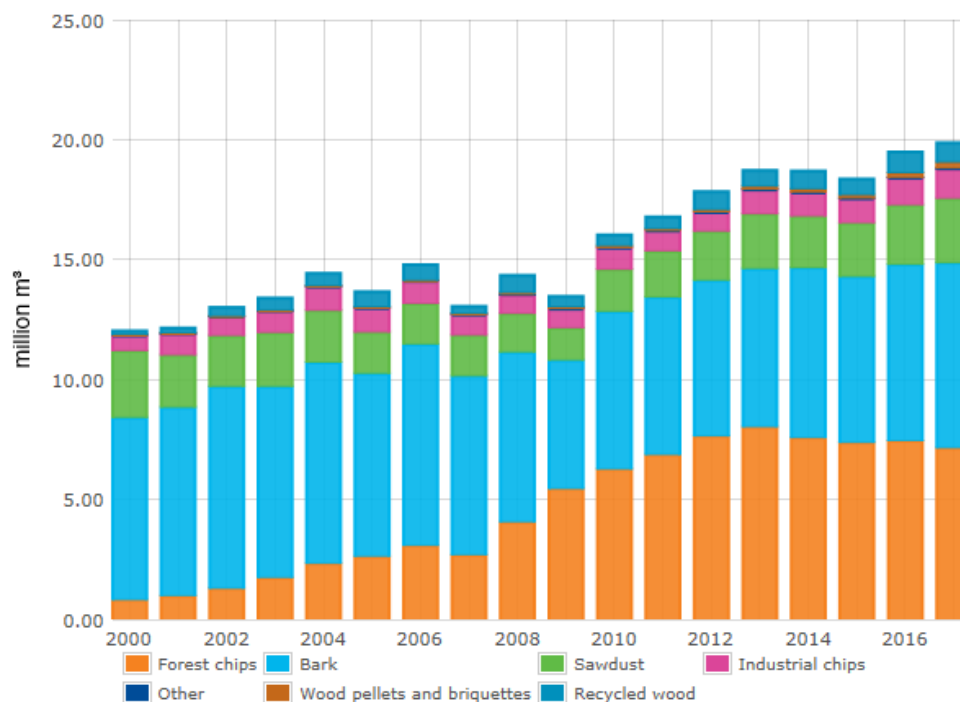
Source: Waste statistics 2016, Statistics Finland

Energy use of municipal waste has been a common treatment method in recent years and has become an important energy fuel for district heat production. Biocomponents are a part of energy-recovered municipal waste, including for example wood, paperboard and cardboard as well as food waste, are able to limit greenhouse gas emissions as they replace the use of fossil fuels.

The material recovery rate is high for fibre packaging, while most biowaste is composted (about two thirds of the total amount of kitchen and food waste) or digested (one third).

Wood waste is one of the municipal waste components and amounted to 45.6 thousand tonnes in 2016, of which about 3 thousand tonnes were recycled, and the remaining 42.6 thousand tonnes were directed to energy recovery.

### Solid wood fuel consumption in heating and power plants (provisional)



Source: OSF: Natural Resources Institute Finland, Wood in energy generation.

The preliminary statistics for 2017 indicate that 828 thousand solid cubic meters of recycled wood were consumed in heating and power plants as part of a total of 19.9 million solid cubic meters of solid wood fuels consumed in Finland in 2017.

## Technology Transfer to Finland

To date, through their representative Luminer Oy, Ecohog have worked with three different customers in Finland; Salon Hyötykäyttö, Lakeuden Ympäristöhuolto Oy & Enerkon, two of them processing commercial and industrial waste, which goes on to be used for refuse-derived fuel. These customers use basic static Windshifter models (model SM1), for separating light from heavy material.

Ecohog have also a Hogmag for waste wood applications and a new project due to be installed in Helsinki in Summer 2018 which incorporates two static Hogmag Eddy Current Separators and Ecohog Razorback Starscreen in a line with some of the customer's existing equipment. The plant will process waste wood to make a waste wood biomass fraction. Ecohog equipment will help remove metals and plastic de-contaminants.



Photo: Ecohog Ltd.

## Technology Transferred

### *Ecohog Windshifter*

One of the technology products manufactured by Ecohog Ltd. transferred to Finland is the Ecohog Windshifter. The unit allows customers to incorporate air separation into new or existing processing configurations that have contaminants in the materials.

Basically, the Ecohog Windshifter is a combination of a VSD controlled airflow with an acceleration belt or vibrating pan, and a rotating drum. The Ecohog waste separation process starts by feeding pre-sized waste onto an accelerator belt which travels into the Ecohog Windshifter, where an air separator chamber is used to separate the heavy material from material that weighs less – lights. The materials are sped through a conveyor to a separating drum. The heavy materials then drop down onto a transfer belt, stockpile or other mechanism that leads to further processing; while the lighter material is blown upwards by the air and dispersed into a bunker or onto a conveyor. The separation of the lighter particles from the heavier ones is achieved by an adjustable air flow. In some applications the heavies are also passed through a magnetic field to separate metals from other heavy material.

Windshifters can be used to separate and upgrade a variety of waste streams such as:

- Construction and Demolition Waste (C&D)
- Commercial and Industrial Waste (C&I)
- Compost, Biomass & Wood
- Electronic and Electrical Waste (WEEE)
- Bottom Ash

- Refuse derived fuel (RDF)

### *HogMag Eddy Current Separator*

The HogMag Eddy current separator introduces the use of a powerful magnetic field to separate non-ferrous metals from waste post removal of all ferrous metals which are removed by a magnet arrangement.

The HogMag Eddy Current Separator has been designed to provide high quality levels of recovered ferrous and non-ferrous metals for a wide range of applications such as:

- Aluminium can recycling
- Scrap metal processing
- Automotive Fragment
- Wood processing
- Biomass
- C&D / C&I
- MRF

### *Razorback Starscreen Hook Loader Unit*

The Razorback Starscreen has been specifically designed for the wood recycling sector. Teaming the Razorback with a shredder creates a closed loop system that eliminates secondary handling of material. Material which has not been sized passes through the Razorback screen and back through the shredder until the wood is shredded to the required size.

## **Conclusions**

Worldwide, there is a greater focus on minimising waste, reducing landfill waste and recycling in general. Therefore, the need to integrate efficient waste separation and processing technology is a growing global concern.

Also in Finland, the recovery of waste has become increasingly important. The technology transferred to Finland provides an alternative to manual sorting which is both exhausting and expensive. The technology allows customers to incorporate air separation into new or existing processing configurations that have contaminants in the materials. In the UK and Ireland this is now necessary with customers being legislatively driven to produce higher-grade products. In continental Europe the demand for this requirement has already existed for much longer and in excess of 10 years.

Ecohog's advantage is that the equipment is modular, flexible and compact, which can help customers to maximize their processes by working alongside existing equipment. Another key issue for the successful transfer of technology is the linked transfer of knowledge related to the technology. Ecohog's knowledge of the industry worldwide enables them to provide consultancy, helping customers design the best solution for their waste processing needs. As a small and medium-sized enterprise, Ecohog can also offer tailored elements that larger manufacturers with production line items are unable to do.

## Sources and References

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# GREBE

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 GREBEProject

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## Project Partners

GREBE will be operated by eight partner organisations across six regions:



## About GREBE

GREBE is a €1.77m, 3-year (2015-2018) transnational project to support the renewable energy sector. It is co-funded by the EU's Northern Periphery & Arctic (NPA) Programme. It will focus on the challenges of peripheral and arctic regions as places for doing business, and help develop renewable energy business opportunities provided by extreme conditions.

