



## From Whisky by-products to Biofuel

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**The Scotch Whisky Association  
United Kingdom**

**2015 > 2015**

**#CO2Emissions #EnergyEfficiency**

**#ResourceEfficiency**

**#WasteManagement**



### Objective

Reduce greenhouse gas emissions, valorization of distilleries' by-products.

### Description

A Scottish company patented a revolutionary technology recycling draff and pot ale into a biobutanol fuel which is 89% less polluting than fossil fuel.

The innovative process was researched over two years at the Biofuel Research Centre, which was established at Edinburgh Napier University in 2007 by Professor Martin Tangney, who is a world-authority in biobutanol production.

Due to the environmental pressures around carbon emissions, the economic pressures of high oil prices, and the desire of countries for security of energy supply, that there is huge interest in the potential production of biofuels.

At present most biofuel, especially bioethanol, is made from fermenting food crops which are grown specifically for the purpose. The economic viability and environmental advantages of this are questionable.

This technology uses bacteria able to convert the sugars xylose, arabinose and glucose into biofuels. The initial primary source of the by-products is from the Scotch Whisky Industry. Overall, the process produces 30% of acetone, 60% of butanol and 10% ethanol. All these chemicals can be used in the industry.

## Partners

In the early phase, Tullibardine Distillery supplied the by-products.

The experiment was then scaled up to the Bio Base Europe (Belgium).

A number of Government departments and agencies such as UK department for Energy and the Scottish Government have supported this high-potential project.

## Results

A commercial-plant is planned in Scotland with the aim of process 100,000 tonnes of by-products/year.

Looking to the future, other plants will be built in regions where there is a concentration of distilleries and the concept is likely to be replicated across the world as the beer sector produces draff as well.

Celtic Renewables was named 'Europe's most innovative biotech SME' in 2015.

## Website

<http://www.celtic-renewables.com/>

## Downloads

## Photo gallery

