



## REVIEW OF CURRENT SITUATION OF WASTE PLASTICS RECYCLING TECHNOLOGIES IN SCOTLAND

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### ***BPC: Sustainable Plastics to Olefins Recycling Technology (SPORT)***

#### **Current situation:**

The project grant has been approved by DTI and it started in 1 August 2005 and ends by the end of 2006. The project period is 28 months.

The project has changed its initial strategic direction, as a result of their feasibility study. The initial idea was to develop BP's own technology and subsequently build up its conceptual plant to pilot and commercialize the technology. However, BP found that this is too time consuming and too expensive.

What has been proposed to DTI is to identify the 3<sup>rd</sup> party best practice of polymer crack technology to convert waste plastics to fuels and other products. Such a technology should be commercially available and with proven operation record; and then the project will adopt and commercialize it. This would enable the project to collect commercial engineering designing data without establishing a demonstration plant.

The other important outcome is to advance the exploration of identified technology by carrying out commercial plant assessment. This is to make preparation for the commercialization of this identified technology. BP is planning to build up its own plant by the end of 2008, which will be operated in commercial mode.

The project is based on a consortium, consisting of a number of partners, including:

- Two supply chains: rural service Scotland and Recoup
- Three university institutions: Imperial, LBS, and Edinburgh
- Consultant: URS
- Shredding service provider: Bowman UK

The project is divided into 4 stages:

- Appraise: scrutinize commercially available technologies worldwide;
- Select: decide the best practice of cracking technology
- Define: commercialize and adopt the technology
- Execute: carry out commercial operation of identified technology

In parallel of these four stages, a conceptual program will be started in 12 months time, including feasibility study, business proposition plan and etc.

Given the recent organizational change in BPC, the project will be still under the administration of BPC but with new brand INNOVENE.

**Contact:**

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***Cynar plc: “plastics to diesel” plants in the UK and Ireland***

Cynar is partnering Australian company Ozmotech on the venture, which is based on existing technology running in 9 plants in Japan. Cynar’s plan is to build up 7 plants in the next five years, and the first is due to be on-stream in the UK by April 2006, and that the Irish Farm Films Producers Group has recently signed an agreement to supply farm plastics to Cynar.

It is reported that these ‘regional scale’ units operate on 10 and 20 tonne per day continuous feed modules and can handle upwards of 7,000 tonnes of mixed plastics. This converts to 6 million litres of diesel-like fuel per annum, with up to 95% conversion efficiency claimed. Any plastic - including farm, domestic or commercial - can be put through the system and turned into a fuel.

The process of liquification and pyrolysis plastics to form fuels and other petrochemical feedstocks is not a new one, but issues of security and quality requirements of input materials have restricted the development of commercial scale plants in Europe.

Cynar have secured the waste plastic feedstocks from a variety of sources including contaminated domestic, agricultural and post-industrial, with each system capable of diverting over 6000 tones of plastics away from landfill each year.

The Cynar plants report the ability to accept a range of plastics offers the attraction of lower throughput requirements. From a regulatory viewpoint, it is likely that the process will be classified as a recovery, rather than a recycling process, as the output is a fuel.

**Current situation:**

Cynar has signed the contract with OZmotech to buy 7 plants in November 2004. The first plant will be built up in Dublin, Ireland. The manufacturing of the equipment for this plant will be carried out in Australia and completed in March 2006. It will take up to 4 weeks for installation and validation after arrival. This plant requires 6,800 tones

of waste plastics for its feedstock and will produce 6.3 million liters of diesel plus 500,000 m<sup>3</sup> of white spirits, which can be used for a wide range of industrial purposes. The diesel produced from the process completely meets relevant specifications, with even lower emission.

Cynar invested £ 3.5 million to build up this plant, which will employ 9 workers. The occupancy area of the equipment itself is 350 m<sup>2</sup>, and more space would be required for storage, loading and other services.

Cynar has particularly selected Ireland for their first installation. This is mainly because of the support from local government and farmer organizations, which have guaranteed the secured supply of waste plastics for the plant. The feedstock for the process could be from three sources:

- Agricultural waste plastics;
- Post-consumer waste plastics;
- Commercial and industrial waste plastics

The 2<sup>nd</sup> plant is planned to be built in Aberdeen, with the same size, setting and production scale. Cynar has secured the local supply of waste plastics from a number of organizations. Due to commercial reasons, Cynar would not disclose their names at this stage. The plant is going to be in full operation in October to November 2006.

The 3<sup>rd</sup> plant will be built in south Wales.

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## ***Greenward Environmental Technology***

GET planned to team up with MRP (Material Reduction Processing Ltd, 4.2, Trostre Road Industry Estate, LLANELLI, SA14 9UU tel: 01554 749330).

The innovation of this technology is that it is able to produce clean emission from a conventional waste plastics recycling process by converting them into useful chemical products.

**Current situation:**

The project has collapsed due to the decision by Dundee University of closing down its Chemical Department. The Chief Engineer Dr Thomson has been made redundant and now is working at St Andrews University. Dr David Hutson has informed Scottish Executive to withdraw SMART grant. Dr David has no further plan to pursue the project.

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