The large-scale incineration or dumping of plastic films in landfills could soon be a thing of the past as new technologies seek to convert plastics into fuels and other useful products.

Economic factors and fundamental difficulties with handling and sorting at recycling facilities has resulted in plastic film recycling still being in the early stages of development, especially in comparison to recycling processes for dense rigid plastics such as Polyethylene Terephthalate (PET) used widely in the drinks industry.

As a result, policy around the world has looked at alternative solutions to reduce the impact of plastic films, especially plastic bags, on the environment. Controversial policies have included the banning of single-use plastic bags and imposing charges on consumers.

However, Axion Consulting – a UK-based waste processing consultancy specialising in plastics recycling – believe it is now technically feasible and economically viable to begin the large scale collection of low grade plastic films for conversion into fuels and other recycled products.

Speaking at the 12th European Gasification Conference – organised by the Institution of Chemical Engineers (IChemE) in The Netherlands – Sam Haig, IChemE member and senior engineer at Axion Consulting, said: “Plastic films are lightweight and 2D in shape and can easily get mixed into other recycling streams, such as paper, causing contamination.

“They also have a tendency to get trapped in recycling machinery requiring regular maintenance. As a result, plastic films have been excluded from most public household waste collection schemes around the world.

“However, a new generation of machinery uses a flow of air to help detect and remove around 95 per cent of films from co-mingled kerbside waste collections1. The process is likely to be more economical and efficient than current machine-based and hand-picking operations. Importantly, the recycled films can be used for products including refuse sacks and signage for retailers.”

Haig continued: “Our analysis also suggests that it is now economically viable to convert low grade plastics into fuel. We studied five chemical engineering processes and concluded that three: fast pyrolysis; depolymerisation; and gasification with biological treatment provided significant financial returns over a ten year period.

“The more efficient sorting of films at recycling facilities and the conversion to fuels are clearly better solutions than disposal in landfills or by incineration. However, avoiding irresponsible disposal in the first place and increasing our efforts to re-use plastic films and bags should be the priority for everyone.”

For further information vsiit www.axionconsulting.co.uk