



Advanced Plasma Power and Group Machiels announce landmark waste management joint venture

- Innovative British technology company is the first to provide viable and sustainable waste-to-energy solution –

Advanced Plasma Power (APP), the UK-based waste-to-energy company and Group Machiels, the global waste management firm, today announce a major joint venture in order to undertake the first enhanced landfill mining project in the world - involving an investment of hundreds of millions of euros.

Process and product development to make efficient use of all phases of a product's life cycle, thereby closing the materials loop, are indispensable tools to overcome depletion of raw materials, shortage of energy and CO₂ accumulation in the atmosphere.

The mining of existing landfills are an exceptional example of closing the material's loop. Hence, the Closing the Circle concept, an enhanced landfill mining concept, has been developed by Group Machiels in collaboration with a consortium of academic partners (KULeuven, VITO, UHasselt), extracting the maximum value from historic waste streams as materials and energy, as well as CO₂ sequestration or offsetting.

The Closing the Circle concept is being implemented in the project at the landfill site of Remo Milieubeheer NV in Houthalen-Hechteren, Belgium, a subsidiary of Group Machiels. More than 16 million tons of waste is stored at that landfill site. The type, amount and location of the waste stored is well documented, allowing its effective and efficient mining. Around 45% of the stored waste can be recycled as material. The recycling residue can be processed through APP's patented Gasplasma® technology, Europe's first truly sustainable waste-to-energy application of this kind.

The joint venture aims to construct an energy plant using up to five Gasplasma® units, with a net electrical power of 75 to 100 MW - this is equivalent to the energy required to power 100,000 homes. The energy produced by the Gasplasma® units will be fed into the national electricity grid in Flanders.

This joint venture is the first deal of this scale for the ground breaking Gasplasma® process. It combines two existing and proven technologies to produce a highly efficient waste-to-energy process meeting all European emissions requirements with virtually no residual wastes.

The Gasplasma® process is a gasification and plasma conversion technology that converts the waste stream into a clean hydrogen-rich syngas and a vitrified recycle product called Plasmarok® that can be used as a building material or replacement aggregate. The Gasplasma® process destroys harmful gases leaving the high quality syngas to be used to generate clean, renewable, local energy.

Therefore the Gasplasma® process is perfectly suited for the Closing the Circle project, which will see the Remo landfill site that has been in use since the 1970s returned to its original state with green spaces to be enjoyed by the community.

Simon Merriweather, Chief Executive of Advanced Plasma Power said, "This is a landmark project for Europe. We are working with Group Machiels in a joint venture that makes best



use of our Gasplasma® technology because we are able to provide a cost-effective and environmentally friendly waste-to-energy solution.”

Louis Machiels, Chairman of Group Machiels commented, “This joint venture is an important step in the realization of a ground braking project. It is part of our Closing the Circle philosophy that wants to contribute significantly both to a cradle to cradle approach of the use of materials and the reduction of CO₂ in the atmosphere. The energy plant that we will build together with APP is one of the key elements for the success of our plans. It is in the same spirit of collaboration that we want to reach out to other stakeholders. That should help us to achieve the ambitious goals set for this and other future enhanced landfill mining projects.”

This project is the first of a number of initiatives that APP is undertaking over the coming months that will encompass waste-to-energy projects in the UK and mainland Europe. With landfill gate fees rising and energy security continuing to be an issue, the need for sustainable waste-to-energy solutions has never been greater.

- Ends -

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Notes to editors:

Gasplasma® is a 3 stage process:

- 1) The pre-treated waste feedstock is gasified in a fluidised bed gasifier, producing solid chars and ash in addition to a synthesis gas ("syngas"), which at this stage still contains tars and soot
- 2) A plasma converter is used to crack the impurities in the syngas and 'polish' it whilst simultaneously vitrifying the ash and inorganic fraction from the gasifier to form Plasmarok®
- 3) The resulting clean syngas is used to power gas engines generating secure, clean, local heat and power