EQTEC PLC

TRANSFORMING WASTE INTO GREEN ENERGY

The world is looking to renewable sources of energy to meet constantly increasing energy consumption. As fossil fuel reserves are depleting at an increasing rate and their use is coming under increased scrutiny, more countries are aiming to transform different forms of waste into energy. However, current waste-to-energy solutions available in the market lack the ability to meet stringent compliance mandates from the discharge of emissions perspective. Regulations such as the Waste Framework Directive in the European Union demand that firms reduce emissions particularly from incineration. At a time when decarbonization has emerged as the battle cry for global business communities and governments, there is a huge demand for a solution that facilitates clean energy.

EQTEC PLC is a company that provides proprietary advanced gasification technologies to address two of the world's greatest challenges: managing rising levels of waste and meeting the growing demand for clean energy. The patented conversion technology transforms biomass and waste into a clean synthetic gas. This 'syngas' is then used as fuel to produce electricity and heat, or as a commodity, to produce transportation fuels or Synthetic Natural Gas (SNG). This advanced gasification process is more efficient, more sustainable, and drastically reduces greenhouse gas emissions compared to those produced by incineration.

"EQTEC not only provides solutions to toxic landfills and incinerators, but also reduces the cost of green energy production," says David Palumbo, CEO of EQTEC. This helps firms produce green energy while staying profitable.

What differentiates EQTEC in the market is its in-house developed portfolio of customized and scalable solutions. These include EQTEC Gasifier Technology (EGT), EQTEC Kinetic Technology Model (EKT), and EQTEC Monitoring Platform (EMP). These patented solutions redefine industrial waste management through cost-effectiveness, reliability, safety, operational efficiency, and improved resource utilization.

While EGT comprises the gasifier's design, process and fabrication of all the elements included in it, the EKT, a proprietary prediction model, can infer the synthetic gas quantity and quality within an extremely narrow margin. This modelling is then used to reverse engineer the output required based on the application. With a proprietary data library derived from more than 50 different feedstock types, these accurate predictions are critical to avoid under or over-engineering of the gasifier (a common problem of other technologies). EMP seeds the plants with monitoring sensors that feed data continuously to remote servers. This digital platform allows for the continuous monitoring and control of all operational aspects of the plants. This means more efficient, less staff-intensive operations. It also constantly increases the amount of valuable operational plant data for the company to draw from for future projects.

EQTEC utilises its 20 years of experience in working both as a project developer and technology partner in commercial scale plants. The company has entered into strategic partnerships globally, creating the platforms to deliver world class gasification projects.

> "Our solutions not only tackle the problem of highly toxic landfills and emissions from incinerators, but also contribute to the economy by reducing the cost and impact of energy production"

EQTEC is continuously requested to participate in R&D projects as gasification experts for new breakthrough applications. The company has partnerships with universities and researchers, in France and Spain, to collaborate in testing different feedstocks and applications.

In 2010, EQTEC built a gasification plant for a large client in the Agri-industry sector in Spain to process Olive Pomace waste. This is a difficult feedstock to process due to its high content of sodium and potassium, with very low melting points. Another challenge was the need to make seasonal adjustments to balance electricity and heat production from the plant. Since then, the GE Jenbacher engines of the plant have clocked more than 111,000 audited hours at full designed availability utilising the syngas produced by EQTEC's technology.

EQTEC is actively involved in the future generation of energy using renewable natural gas and biofuels. The company is also looking at partnering with hydrogen fuel cells companies for next generation distributed energy solutions. EC

David Palumbo