



*Tackling our long-term problems with landfills*

# Delta Mobrey - more than just a name, it's a heritage!

As experts in process instrumentation we have a range of products and services designed and approved for use in the Waste To Energy arena. The multifaceted processes involved within Waste to Energy require secure management at each phase of the process. Our staff are experts in their field and are available to provide consultancy and assistance where needed.

Our expertise is garnered from over 100 years of experience within process instrumentation. Whilst our name, Delta Mobrey may be new to the Waste to Energy industry, our heritage certainly isn't. Reflecting back, we have been known as Bestobell Mobrey or Rosemount Measurement, part of the Emerson Group, before merging product ranges.

The Mobrey range of products was assigned to Delta Controls in 2019. As part of the merger and to reflect all product brands, we became Delta Mobrey in 2019. So, whilst the company name is new, the industry expertise and understanding aren't. Our product range is enhanced as is our level of expertise and customer experience.



## A Century of Process Solutions

- 1904** Ronald Trist patented the "SEA Ring" gland packing ring for boiler house steam engines.
- 1928** Founding of Ronald Trist Co. Ltd.
- 1947** Chief Engineer Leonard Bomyer develops a magnetic level switch, named the Mobrey (an anagram of his name).
- 1950** Delta Controls founded with the development of Pressure & Temperature switches.
- 1956** Delta Controls chosen for first commercial nuclear reactor.
- 1975** Development of classified and non-classified nuclear instrumentation.
- 1976** Acquisition of Meterflow and Sparling flow meters.
- 1980** Smart HART pressure transmitters developed.
- 1988** Meggit plc acquires KDG Instruments Ltd.
- 1990** KDG Mobrey formed.
- 1991** World's first Smart Ultrasonic Level Transmitter developed.
- 1999** Flow, Density, Viscosity, Hydrastep™ and Hydratec™ products added via acquisition by Roxboro Group.
- 2000** Global expansion of offices across Europe, USA, Middle East and Asia.
- 2005** Mobrey brand becomes part of Emerson Process Management.
- 2019** Delta Mobrey formed with the acquisition of Mobrey products and technologies from Emerson.



# Waste to Energy - providing more than just power

Waste to Energy, WTE, in its most basic form is where waste, from landfills, is burnt at high temperatures, which heats water within an industrial water tube boiler, the steam created is then used to turn turbines to create electricity. The overriding benefit of this process is the 90% reduction of landfill sites. In addition, Waste to Energy can be used in the production of various other energy vectors and fuels, including the production of biogas, from biogenic waste. Waste to Energy can also produce fuels as hydrogen, where the combustion of municipal solid waste can provide some or all the energy required for the generation of hydrogen through electrolysis or gasification.

This multifaceted process is part of the circular economy, as it takes its feedstock from landfill and then provides positive products and byproducts to be reused, including the recycling of ferrous metals, which are removed as part of the process.

To ensure that these plants work effectively, their layout need to be meticulously designed to reach the exacting standards required. At Delta Mobrey we have a range of products and services dedicated to the safety critical environments within these sites.

## Why Delta Mobrey

Being able to measure and control pressure, flow, level and temperature accurately, in all environments and in all industries, to ensure safety standards are continually maintained, requires precise and robust process instrumentation. Delta Mobrey has been working within this environment for over 100 years and has garnered an exceptional level of expertise which we manufacture into all of our products.



*D31 Pressure Transmitter*

# Waste to Energy – variables and progression

## Waste to Energy

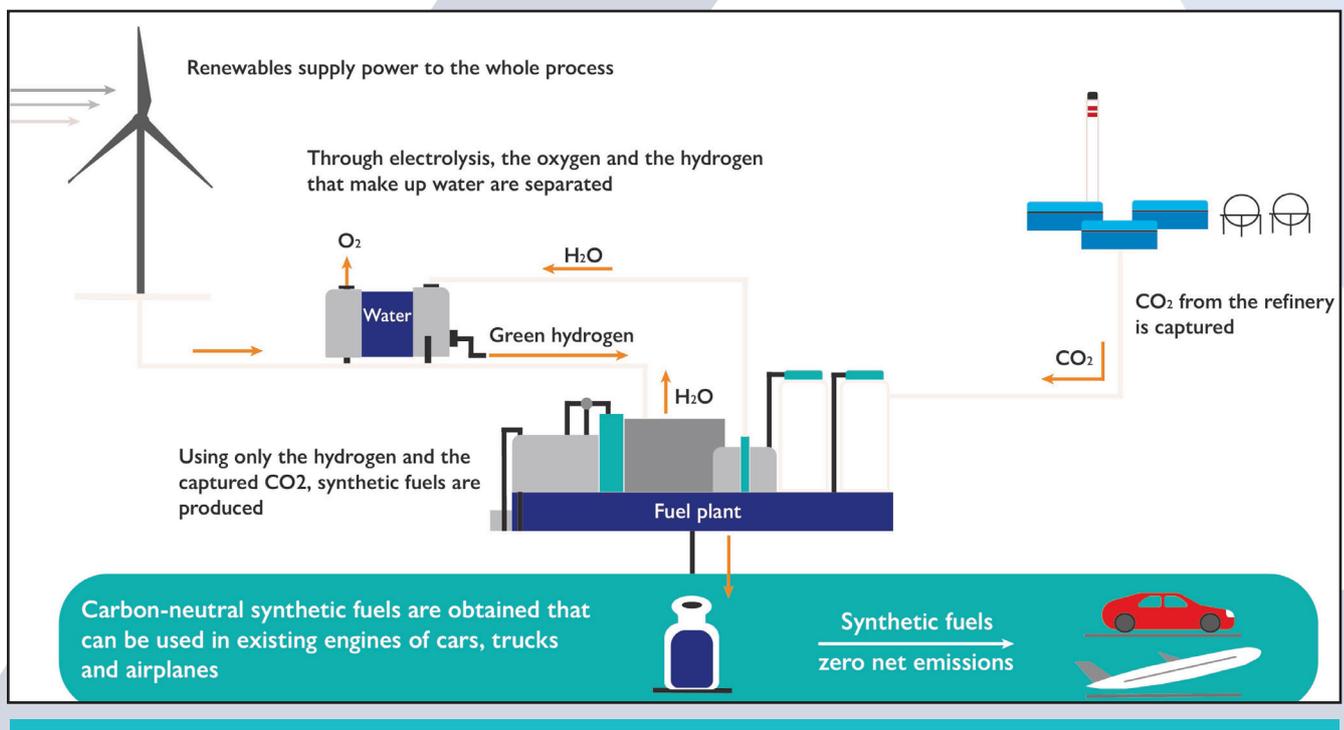
During the initial introductory phases of waste to energy, it was considered a way of dramatically reducing the amount of landfill and the noxious greenhouse gasses emanating from them, up to 90% of landfill material.

## Recycling Metals

As part of the Waste to Energy process ferrous metals are removed at the start of the process and then non-ferrous metals from the waste ash and are sent for recycling. The metal and aggregate recovery is deemed to save 3.8 million tonnes of CO<sub>2</sub> each year, just within Europe.

## Waste to Hydrogen

The energy produced by Waste to Energy can be used to make Hydrogen using an electrolyser. This ability to convert biomass energy to fuel ensures that that the Waste to Energy industry can genuinely be part of the circular economy. There are a number of initiatives across Europe who are looking to take Hydrogen made from waste and putting it into fuel cells for municipal heavy-duty vehicles such as the garbage trucks, thereby closing the loop on Waste to Wheels. Future plans are to have the waste from energy fuel more vehicles including ships.



# Delta Mobrey – Working with Energy to Waste

Waste to Energy plays an important part in the reduction of methane from landfills, not just offsetting emissions from fossil fuel production but also recovering ferrous metals for recycling and producing hydrogen as fuel. However, it is also an industry that needs to build in health and safety at all levels. Whilst the initial raw materials are not viewed as hazardous waste, the dynamics to convert this landfill to energy needs to measure and monitor high levels of pressure and temperature during the entire process. The incineration of this waste is used to raise steam in water tube boilers, which is utilised to turn turbines, creating energy. Knowing the balance of water and steam contained within the boiler is essential for the safe and efficient running of the entire facility.

As process instrumentation specialists, Delta Mobrey has years of experience in monitoring the levels of steam and water so that boilers operate safely. Hydrastep, has been designed specifically to monitor boiler levels, in the simplest and most reliable manner making it a great option for all Waste to Energy organisations looking to maximise the smooth operation of their facilities.

## Product Range Overview

### Control

#### Hydrastep

Delta Mobrey's Hydrastep is already being used at a number of Waste to Energy plants within the UK and within Europe. Hydrastep is becoming the choice of plant operators to ensure the safety of the plant and personnel. Hydrastep was originally developed in conjunction with the UK's CEBG. The use of conductivity probes, positioned along a vertical water column, gives a highly reliable method to differentiate between steam and water. The level display can be repeated in the control room and is immediately visible to operators without having to look at monitors. Alarms or trips can be assigned to chosen levels. The dual redundant design means that even with an internal fault, the Hydrastep will continue to give a drum level indication. Hydrastep is SIL2 capable and is the first conductivity probe to achieve this.



### Transmitters

#### D Series Pressure and Temperature Transmitters

The D Series offers a wide range of transmitters, from simple analogue to digital, with SMART HART output signal. This range is robust, available in IECEx or ATEX with intrinsically safe or flameproof protection mode, making them a perfect option when dealing with potentially volatile environments. This is a comprehensive product range that is easily configured and can be set up to communicate with HART protocols with Handheld Communicators or Delta Mobrey's D-soft software. The SMART HART instruments have a high standard of accuracy of 0.075%, and higher accuracy 0.04% is available as option. The availability of SIL certified versions makes the instrument suitable for Emergency Shutdown (ESD) systems.



## Switches

### Sentry Series

The Sentry Series offers exceptional performance and high build quality in a simple, safe and cost-effective package. It has recently been redesigned into a simple one-piece enclosure, so we use 70% less material in the manufacturing process without compromising on the quality or the performance of the product. Safety is maintained by a vent that stops the enclosure becoming pressurised should a sensor be damaged. By keeping a selection of common standards we can maintain the costs associated with the manufacture of this product, although as with all Delta Mobrey products, there are a variety of optional extras available upon request. The availability of SIL certified versions are suitable for ESD systems.



### Industrial Range

The Industrial Series of switches was developed to offer customers a robust range of switches suitable for applications where the requirements were more standard. Using diaphragm based sensors and a more traditional in-line force balance mechanism to transfer movement from the sensor to the microswitch, these switches are suitable for a wide range of industrial applications. Various international approvals make the Industrial Series suitable for use in both safe and hazardous areas in Europe, North America and throughout the world. SIL certified versions are available making the instrument suitable for ESD systems.



### Horizontal and Vertical Level Switches

Our range of Vertical and Horizontal level switches are one of our best sellers for a reason. They have been engineered to be fault resistant and to continually give confidence wherever they are utilised. Delta Mobrey float level switches are rugged, robust, and trusted globally for their long-term reliability in the harshest of environments and the most hazardous areas. Ideal for industrial applications such as pump control and high or low alarm duty on tanks and pressure vessels, making them ideal for hydrogen production from biogas. These are suitable for ESD systems when the instrument is specifically SIL certified.



### Level Switches for Solids

The VLS and the PLS are ATEX approved solutions for solid measurement. The Vibrating rod level switch is the perfect solution for single point level switching in free flowing solids across a wide density range, from fine powders to grains. A solution for free flowing solids. Whilst the PLS may be used as either a high or low level limit switch. It is easily mounted from above, or through a vessel wall.



## Area Classification and Product Selection

Within the waste to energy environment there are areas that must handle noxious gases, extremes of temperature and maintain the correct water levels within boilers for steam production whilst producing enough pressure to turn the turbines for essential electricity production.

It is important to have a range of instrumentation that has obtained the correct certifications to give you the confidence that the product will continue to function correctly and with accuracy in the most hazardous environments within the Waste to Energy plant.

Waste to Energy is in its infancy as an industry. As awareness and dependence upon renewable energy increases the developments will continue. Waste to Energy has been proven to partner up with hydrogen production, via an electrolyser, to produce fuel cells for vehicles. As the industry matures, its capability will also morph and grow, this is why it is essential that all process instrumentation gives continued accurate support.

For more information on how process instrumentation can work with Waste to Energy please contact your local sales office, please see overleaf for all of our global offices.



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Delta Mobrey has a worldwide network  
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