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Case Study - Brewing Industry NVP Energy Wastewater Treatment at Heineken UK

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The Customer

Heineken are a leading global brewing group with annual turnover in excess of €20 billion, producing 190 million hL of beer annually across 115 breweries worldwide.

The Problem

With no wastewater treatment facilities on-site, resulting in substantial trade effluent charges, the customer assessed various wastewater treatment systems, none which provided an acceptable payback period to warrant the capital investment. The customer generates over 2,000 m³ of wastewater per day from their brewing production process.

In 2018, NVP Energy introduced their unique, innovative on-site wastewater treatment solution, that will allow the customer to significantly reduce their trade effluent charges (Mogden charge) through the removal of wastewater pollutants in their effluent stream before eluting to sewer. Chemical oxygen demand, total suspended solids & sludge will all be significantly reduced by the NVP Energy solution. In addition, exceptionally high-quality biogas, a by-product of the NVP Energy process, will be utilised to generate heat, reducing the site's energy consumption footprint.

The Solution

NVP Energy was appointed by Heineken based on the compelling return on investment offered, in contrast with alternative on-site wastewater treatment systems that had previously been assessed by the customer.

The NVP Energy solution is innovative, off-site fabricated and allows for future expansion through additional modules within a small footprint, ideal for a space-constrained site.

The NVP Energy package offered a compelling 3-year payback period to the customer through significant reductions in trade effluent charges and supplying heat generated from the high-quality biogas by-product of the process.

In addition to financial benefits, NVP Energy offered the customer:

- A small on-site footprint
- Short installation and commissioning time as the system is fabricated off-site.
- A modular system (500 m³ capacity per module) allowing for future expansion and a staggered CAPEX spend.
- Exceptionally low operating and maintenance costs with a simple user interface and remote monitoring features.



Visualisation of completed Heineken project including equalisation works and 4x NVP Energy off-site manufactured modules with accompanying containers.

The Project

The project consists of a fully integrated, biogas-generating, wastewater treatment solution comprising 4x NVP Energy modules with equalisation works, treating 2,000 m³ of wastewater per day delivered over two phases. Phase 1 works, which include the delivery of one NVP Energy module, are currently being commissioned.

NVP Energy module and container on-site

NVP Energy achieves up to 90% COD reduction with a corresponding annual reduction of trade effluent charges by over 60%. In addition, biogas generated by NVP Energy will be used on-site to generate heat for the production process, delivering savings and reducing the customer's carbon footprint and fossil fuel consumption.

The entire wastewater treatment plant is contained within a small footprint adjacent to the sewer discharge point. The system has minimal operating costs and includes smart controls, with seamless integration to existing on-site SCADA system and remote monitoring features, allowing for simple operation & maintenance.





ENERGY

Modular, Expandable **Wastewater Solution with Attractive Paybacks**

NVP Energy is an ideal solution for paying trade effluent charges to treat

effluent charges, servicing aging treatment systems or planning a new build, NVP Energy offers annual and TSS removal.

In addition, biogas produced can be renewable heat incentives and feed-in

operating costs, NVP Energy offers, on

NVP Energy Modular Design Suitable for all sizes of brewing sites

Wastewater volume generated (m³/day) on site

No. of NVP Energy Modules

Payback Period

NVP Energy Technical Specification			
Treatment Capacity		2,000 m³ wastewater per day total capacity 500 m³ wastewater per day per module Easily expandable with additional modules	
Module Dimensions		12 m height, 4.5 m diameter	
Wastewater Pollutant Removal	COD	Influent 500-5000 mg/L 90% removal rate	
	TSS	Influent < 1000 mg/L 50% removal rate	
	Sludge	90% organic sludge removed	
Low OPEX		Passive pumped system No heating or aeration required	
Energy Positive		>85% methane content biogas 100% available for use	
Carbon Neutral		Closes carbon loop, displaces fossil fuels	
Modular		Off-site manufactured module Containerised M&E Small footprint on-site	
Control System		Smart controls system with remote monitoring	

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500 1000 2000 4000 1 2 4 8 Average 3 Years





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