



The Customer

Arrabawn Dairies is part of Arrabawn Co-op, a leading Irish dairy group, with a turnover of €200m, producing liquid milk, consumer milk products and animal feed.

The Problem

With a large production increase planned, Arrabawn Dairies faced a problem with wastewater treatment capacity on their Kilconnell, Co. Galway production site. The existing, at-capacity, aerobic wastewater treatment plant on site needed to be upgraded to maintain high effluent quality. In addition, increasingly stringent EPA licence consent limits required the customer to ensure any upgrade would provide effluent of sufficiently high quality to discharge to local watercourse.



The Solution

Arrabawn Dairies chose NVP Energy as the sustainable, low OPEX wastewater solution to provide the treatment capacity increase they required.

Providing cost savings and value to the customer, the NVP Energy solution integrated seamlessly with the existing treatment plant.

The scope of work included:

- One **NVP Energy module** with containerised mechanical & electrical components and smart controls system, treating up to 500 m³ of wastewater per day, providing 90% COD & 50% TSS removal with high quality biogas generation, ideal for on-site heat and electricity production.
- A **dissolved air floatation (DAF)** unit at the primary treatment stage, upstream of NVP Energy for removal of fats, oils and greases (FOGs) before NVP Energy treatment.
- An **anoxic tank** at the tertiary stage, downstream of NVP Energy, for removal of nitrogen, a dairy-specific pollutant.
- Civil & ground works associated with module, M&E container, DAF, anoxic tank and pipe connections.

Results

Following commissioning, the NVP Energy system exceeded customer expectations, achieving 90% COD reduction, 50% TSS removal.

As a result, Arrabawn Dairies are now eluting increased volumes of wastewater within their discharge consent limits with 50% less operating costs compared with the previous aerobic installation. Sludge production has been reduced by 90% with resulting savings in sludge management costs.

In addition, biogas generation from NVP Energy provides Arrabawn Dairies with a carbon-neutral heat source for their production facility.

These benefits are delivered with minimal customer interaction with the plant, through the NVP Energy remote monitored control system.



NVP Energy Technical Specification

Treatment Capacity		500 m ³ 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
Modular		Off-site manufactured module Containerised M&E Small footprint on site
Control System		Smart SCADA controls system with remote monitoring



Modular, Expandable Wastewater Solution with Attractive Paybacks

NVP Energy is an ideal solution for customers eluting to watercourse or paying trade effluent charges to treat their wastewater.

For customers paying high trade effluent charges, NVP Energy offers annual savings in excess of 60% through COD and TSS removal.

In addition, biogas produced can be utilised on-site for heat and electricity (CHP) generation and is eligible for renewable heat incentives and feed-in tariffs.

Taking into account trade effluent savings and biogas with low operating costs, NVP Energy offers, on average, a payback period of 3 years.

Payback Example

4x NVP Energy module installation, treating 2000 m³ of wastewater per day at a large dairy processing site with biogas connected to on-site boilers.

4x NVP Energy Modules installed at UK Food Processing Plant	Values
Trade Effluent Charge without NVP Energy	-£1,850,000
NVP Energy CAPEX	-£4,050,000
NVP Energy Savings per annum	
Reduced Trade Effluent Charge	£1,040,000
Annual Heat Generated (Biogas)	£250,000
Renewable Heat Incentives (RHI)	£370,000
NVP Energy OPEX per annum	-£20,000
Total Annual Savings	£1,640,000
Payback Period with incentives	2.5 Years
Payback Period without incentives	3.2 Years

NVP Energy Modular Design Suitable for all sizes of dairy processing applications

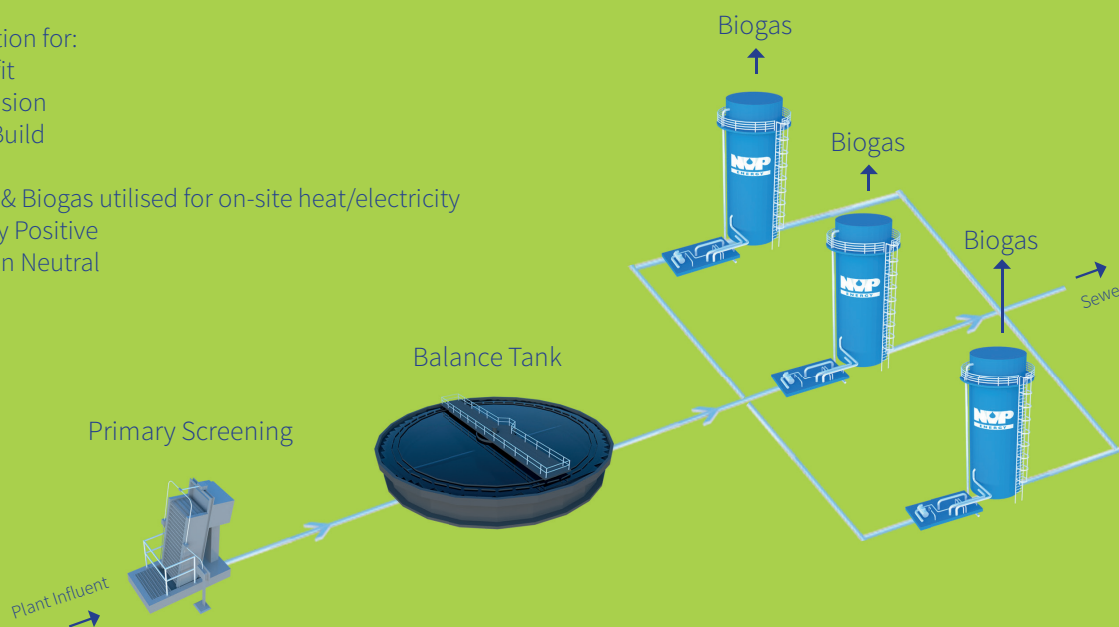
Wastewater Volume generated (m ³ /day) on site	500	1000	2000	4000
No. of NVP Energy Modules	1	2	4	8
Payback Period	Average 3 Years			

Ideal Solution for:

- Retrofit
- Expansion
- New Build

Low OPEX & Biogas utilised for on-site heat/electricity

- Energy Positive
- Carbon Neutral



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